Infantry

SCHOOL QUARTERLY

The Magazine for Infantrymen, October 1953

THE INFANTRY SCHOOL
OCTOBER 1953

LETTERS TO THE EDITOR 1

WHAT HAS KOREA TAUGHT US? . . . . . *Col Frank T. Mildren* 1

SUPPLY BY AIR . . . . . *Capt Rolland A. Dessert* 1

FIRE BLANKS WITH THE LIGHT MACHINE GUN . *Mr. Ray S. Miller* 2

THE JAUNDICED EYE . . . . . *Maj Kenneth G. Groom* 2

RAID FROM THE SKY . . . . . *Capt Bickford E. Sawyer, Jr.* . . 3

WHAT'S NEW! 4

A REAL CONVINCER . . . . . *Maj Ellis Lea* 4

I KNOW THE RUSSIAN SOLDIER . . . . . *Capt William F. Jordan* 5

QUIZ . . . . . *Lt Morris P. Wolf* 5

DEFENSE ON AN EXTENDED FRONT . . . . . *Lt Col George H. Russell* 6

LESSONS FOR LEADERS . . . . . *Capt John C. Hughes* 6

THE NEW SQUAD FORMATIONS . . . . . *Capt Dillon Snell* 72

THE INFANTRY MADE ME LIKE IT . . . . . *Pvt Henry McLemore* 7

LET'S ATTACK AT NIGHT . . . . . *Maj Stephen E. Cavanaugh, Jr.* . 7

FIRE POWER PLUS . . . . . *Cpl Norman S. Poser* 8

THE JUDGE ADVOCATE AND YOU . . . . . *Maj Stephen A. Day* 9

INFANTRY AND TANKS, INC. . . . . *Capt Lyman H. Clark* 10

MEET THE AUTHORS 11

UNIFORMS OF 1802-1813 . . . . . Back Cover

Published quarterly by The Infantry School, Fort Benning, Georgia. Entered as second-class matter June 11, 1948, at the Post Office, Columbus, Georgia, under the Act of March 3, 1879. Subscription rates: 1 year, $2.50; 2 years, $4.75; 3 years, $7.00. Four copies a year. Foreign subscribers add $.25 yearly for postage. Address subscription applications to THE BOOK DEPARTMENT, THE INFANTRY SCHOOL, FORT BENNING, GEORGIA.

QUARTERLY

Vol. 43 No. 2

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LETTERS TO THE EDITOR

BOUQUETS!

Dear Sir:

Let me take this opportunity to compliment you on your superior magazine. It is by far the best in the field of military periodicals. My only complaint is that it cannot be published monthly.

Yours truly,
Edward G. Frasher, Jr.
Major
San Francisco 10,
Calif., R&BU

Dear Sir:

How about more articles like "Bunker Busting" and "Hold That Hill." They put out the facts in such a way that one can see himself there as he reads. I certainly look forward to receiving my copy every quarter.

Sincerely,
Willis B. Graham 1st Lt
Berlin, Germany

Thanks! The QUARTERLY staff appreciates both of these letters. We promise to keep our hat the same size as ever. Our objective is to get the QUARTERLY into the hands of every Infantryman. When we get closer to this goal perhaps we can publish monthly.

— *Editor*

SEVENTH ARMY NCO ACADEMY

Dear Sir:

The Seventh Army NCO Academy, which has about 1,000 students, was started approximately four years ago for the purpose of giving advanced training to noncommissioned officers, with particular emphasis on Leadership and Instructor Training. In the Instructor Training Course each student is required to present seven subjects from the platform to his fellow students. These subjects vary in length from two to seven minutes. In order to acquaint the students with professional literature, these subjects are chosen from many military magazines and from "THE INFANTRY SCHOOL QUARTERLY."

In our courses we attempt to teach the very latest doctrines and now with your new feature entitled, "What's New," we find that THE INFANTRY SCHOOL QUARTERLY is of more assistance than ever. Keep up the good work!

Sincerely,
Russell L. Hawkins
Colonel, Infantry
Commandant
Seventh Army NCO
Academy
APO 46, c/o PM
New York, New York

We wrote a letter to Colonel Hawkins thanking him and asking if he wouldn't like to tell our readers more about the Academy. It sounds interesting!

— *Editor*

CIVILIAN COMPONENT DUTY

Sirs:

Inclosed find my subscription to THE INFANTRY SCHOOL QUARTERLY. I have always been an avid reader of THE QUARTERLY and have gotten a lot of good ideas from it. My unit still receives THE QUARTERLY but I feel that a personal file of the publication would be invaluable to me on this assignment. On civilian component a man gets away from the new ideas and practices which are constantly coming out and the THE INFANTRY SCHOOL QUARTERLY is an excellent means of keeping in close contact with these.

Sincerely,

Jack W. Greenway
M/Sgt, Inf
Midwestern University
Wichita Falls, Texas

We were glad to receive Sgt Greenway's subscription renewal and were particularly pleased to have him tell us that THE QUARTERLY keeps its readers up to date.

— *Editor*

PERSONAL APPEARANCE

Sir:

It was with great enthusiasm that I read "Your Other MOS" by Major General Floyd L. Parks, which appeared in the April QUARTERLY.

The general civilian public can only draw their conclusions about the Army from those soldiers that they come in contact with. All too many of our men and unfortunately some officers and noncommissioned officers take on slovenly habits and dress when they leave the post. There is nothing so disconcerting as a uniformed man, especially an officer, appearing in public with a wrinkled uniform, tie loosened around the collar, or otherwise showing disrespect for the uniform and the nation that it represents.

Commanders should encourage their men to exhibit a sense of pride and confidence, in themselves and their unit, when on leave, as well as on post.

Sincerely,

Allen Wolff 2nd Lt, Inf
Shaker Heights, Ohio

We concur completely with Lt Wolff's comments. We were especially pleased to run General Parks' article because the necessity for a good military appearance and equally good behavior both on and off duty cannot be overemphasized.

— *Editor*

Address all letters to: The Editor, Infantry School Quarterly, Training Publications Department, The Infantry School, Fort Benning, Georgia.

Editor's Page

To Our Readers:

For the most part we're not enthusiastic about printing "nice to know" information. We've got more important material to pass on to you. But every issue we find ourselves with a problem that besets most editors. It's this: not all our articles end exactly at the bottom of the page.

Rather than leave you with a snowy expanse of paper, we've begun to print "fillers" containing some interesting facts about the Infantry. We hope you enjoy these fillers as much as we enjoyed researching and writing them. But we don't print them only for amusement. If you're an instructor (and all of our readers instruct at one time or another) perhaps these fillers will give you factual ammunition to spice up a session that may be a little dry. Who threw the first hand grenade? Where did the word Infantry come from? These and other bits will appear in the Quarterly, with no loss of more important material.

The Quarterly is The Magazine for Infantrymen. In other words it's your magazine. We're anxious to receive your suggestions, your ideas, your articles. We'd like to know what you think of the new features that we keep adding to the Quarterly. If you think we're falling short anywhere, we want to know about it. And if you're getting some real help and enjoyment from the magazine, we don't mind a small pat on the back. Let's hear from you.

The Editor

Infantrymen:

The mission — victory
The background — training

What has KOREA *taught us?*

COL FRANK T MILDREN

Let's Learn From Our Mistakes.

"WHAT has Korea taught us Infantrymen, Colonel?" asked the retired general.

"A great deal," I replied.

"Many things that weren't discovered in WW II?"

"Well —." I paused to think.

"You see," he said, and pointed to a stack of WW II combat reports, "there are not too many new things learned in Korea, but a great many lessons were relearned."

"Relearned?"

"Yes! Much of what we consider new isn't really. Search through these 'old' reports, and you'll find items on poor planning, fire support, terrain and the like. Many mistakes are repeaters."

"True!"

"You know why? I'll tell you. It's because we tend to file away the lessons we learn in each war. File 'em and forget 'em. We ought to do something about getting our mistakes corrected NOW. Benefit by these hard earned combat lessons. Get them out to the troops. If we human beings must make mistakes, then by all means let's make new ones. Repeating the old ones is getting pretty damn monotonous."

* * *

This conversation took place a short time ago. Since then I've discovered, after poring over a stack of WW II combat reports, that the general was correct.

"Why is it," I asked, "that we still find so many deficiencies in Korea?"

After digging through more reports, this time of Korean vintage, and confirming personal experiences, I found my answer. It is: "Improper technique in the application of our doctrine and in many cases the complete absence of technique." With this answer staring at us it becomes fairly obvious that we must see what our weaknesses are and overcome them through training. It will benefit all of us to give our "combat lessons" some intra-Army publicity.

While our mistakes are many, our *major* deficiencies are few. In this article we will deal with the latter. Instead of presenting a detailed analysis, I will discuss those "errors" that can be corrected by training. To start off, let's discuss the matter of fire support.

Fire Support. The ability to mass supporting fires rapidly is one of our major advantages over the Reds. Observations in X Corps (1950 — early 1951), however, revealed this to be the "talent" of the artillery, not Infantry. The Infantry, unfortunately, did not make maximum use of its support weapons. For example, in many attacks recoilless rifles were not used, because someone felt "the rifles and ammunition were too heavy to carry up the mountains of Korea."

Unit orders, particularly those at company and platoon level, merely mentioned the attachment or support of a crew-served weapon. Targets and areas of fire were not assigned. The result: These weapons were not properly used in the attack.

Too often battalion crew-served weapons were attached to companies and platoons. This sacrifices the flexibility gained when weapons are employed in general support. We must remember that to insure the success of an attack and reduce our casualties, we must bring Infantry support weapons 100 per cent into the act. This maximum use and support can only be obtained by *detailed*, *thorough* and *timely* PLANNING.

Planning. The American habit of confusing "speed" with "haste" is the root of many of our planning difficulties. We tackle a job with little or no planning. Think it over! Wouldn't it be more economical to spend three or four hours planning an attack that will succeed in 30 minutes than to spend 30 minutes planning an attack that might (with good luck) succeed in three or four hours or days? If we intend to make full use of our "fire" potential, then we must allow time for planning and moving weapons.

Several corrective measures are apparent. The first, however, is to stop taking effective fire support for granted. Written orders (regiment and battalion) must have a detailed fire support annex which includes a specific mission. Leave nothing to chance. A check list itemizing all organic, attached and supporting crew-served weapons will help. This list should include columns for indicating position areas, target areas, assigned missions and other necessary data.

The Infantry School has greatly increased its emphasis on fire support planning. Battalion and regimental problems now include exercises on this subject. A proposed revision to DA Training Circular No. 23 (Organization and Functioning of FSCC's) will further emphasize the subject, and the current revisions to FM 7-10, 7-20 and 7-40 will give fire support planning the detailed treatment it deserves.

Terrain. Early operations in Korea provide many examples of our failure to study terrain and to use it to our advantage. Take the case of a platoon sized patrol in the Yongwol area, January 1951. This patrol ignored the ridges which dominated its route through a valley. The result: A small enemy unit ambushed the patrol and killed or captured most of its members.

Here's another example: Several battalions of X Corps had heavy casualties at Hoengsong (January 1951) for the same reason. In spite of being in close contact with the enemy, they ignored the ridges adjacent to the road they were using. Another case: In the vicinity of Chosin Reservoir (November 1950) most of one RCT was lost because of poor terrain analysis. They stuck to low ground instead of using a dominating ridge which paralleled their route of march.

Examples like these and the regularity with which terrrain was ig-

nored from platoon to regiment indicates that something is wrong with our instruction. We must put greater emphasis on terrain evaluation in all tactical problems. All tactical exercises, maneuvers, field problems and map exercises should have a terrain-analysis requirement before any maneuver or planning phase. I strongly feel that some exercises should be devoted entirely to terrain study and tactical walks.

Terrain requirements are included in all problems at The Infantry School. In addition, we have evolved an excellent technique to teach terrain appreciation realistically. The details of this technique are explained in an article called "Bringing the Mountain to Mohammed" which appeared in last April's issue of the QUARTERLY.

Triangular Concept.* Many small-unit failures can be directly traced to a lack of understanding the necessity for fire and maneuver and the need for seeking and striking an enemy's weakness. To correct this, General Collins, the former Army Chief of Staff, directed that the reasons for the triangular organization of Army units as well as the relation between our organization and attack tactics be included in instruction.

Night Operations. The majority of our early reverses in Korea occurred at night. The reason is now obvious. The Reds quickly detected the American's dislike for and ineptness at night operations. Armed with this information, the enemy patrolled and made his major attacks at night.

Since we were inclined to stop fighting at dark and often failed to keep pressure on the enemy after dark with combat patrols, the Reds dug in and soon had a well organized defensive position. The result: In the morning we had to launch another costly penetration.

In late 1951 we started using searchlights to "feel out" the areas forward of our positions. There followed a decrease of enemy night probes and attacks. Unfortunately, we never got the maximum value out of our searchlights. We failed to use them in conjunction with our own (later) night attacks and raids. The 9th ROKA Division showed the value of this technique in the White Horse Mountain Operation (October 1952), when they skillfully coordinated searchlights and fire support. The operation was a complete success.

Before 1950, our troops were inadequately trained in night operations. As a consequence our troops were reluctant to fight at night, and our commanders and staff officers rarely planned any attack for night. The bitter truth is, that in those early days, the Reds, who operated after dark with little fire support, outmaneuvered and outfought us.

The logical outcome of this situation was an increased emphasis on night operations. This training should include operations under artificial illumination and the use

* See "Don't Forget the Fundamentals," by General J. Lawton Collins, January 1953, INFANTRY SCHOOL QUARTERLY.

of all types of illuminating devices. We must also train our men (and commanders) to continue a successful attack after dark. It is also necessary that we learn to plan for night combat and reconnaissance patrols.

Attacking Prepared Positions. The Reds are masters at digging in and camouflage. Their prepared positions are actually "fortified" and require special attack techniques.

In '50 and '51, we attacked dug-in enemy positions in the same way as those without bunkers and communication trenches. We soon learned that against such defenses detailed fire support planning and the full use of *all* weapons is a must. We discovered that our squads and platoons needed augmenting with flame throwers, demolitions and recoilless rifles, and that full use of rifle grenades and bazookas (within platoons) was essential. Unfortunately, in those early days our platoons attacked these fortified positions with little of this needed gear and inadequate fire support.

Red-type defenses are now included in problems at The Infantry School, and the methods of augmenting squads and platoons for this type operation is now stressed.*

Similar training should be included in all our training centers and regular units. To partially fulfill the need for some of this desired equipment, studies are now in progress which may result in making flame throwers T/O&E Infantry equipment.

Conduct of the Assault. Our units move with comparative ease from an LD to the assault line under cover of artillery and mortar fire. However, once the artillery fires are lifted or shifted, they sometimes fail to make progress between the assault line and the objective. The principal reason for this is a failure to have all available supporting weapons continue to fire until the troops are within a few yards of the objective. This weakness on our part is particularly dangerous in Korean terrain since considerable time elapses after the support fires lift and the troops can climb or crawl to their objective.

Are there any corrective measures? Yes! Here they are: (1) Infantrymen must learn to "lean into" artillery fire. This fire should not lift or shift *until the assault has started.* (2) *All* available organic weapons must be used to place a heavy volume of fire on the objective when the artillery shifts (or lifts) its fire. Rifle, grenades, machine guns, recoilless rifles, flame throwers and tanks can all be used to place fire a few yards forward of our troops. Smoke also can be used to screen the assault elements.

Studies made after WW II showed that only 15 percent of our Infantrymen actually fire their weapon in an attack. Similar studies made in Korea indicate that 50 percent now do. Progress has been made, but to reduce casualties we

* See "Don't Forget the Fundamentals," by General J. Lawton Collins, January 1953, QUARTERLY.

Korean Conflict. Communication trenches and bunkers located on a hill captured from the Chinese Communist forces during a heavy assault of UN troops in that area.

need more than an increase in rifle fire. We must increase the fire of crew-served weapons.

Safety regulations prevent firing "close-in" support fires during assault training. However, all instructors, commanders and their staffs must so emphasize the desired standard that the correct "leaning in" technique sticks with the trainee.

Organizing on Objective. In the early days in Korea we failed to organize quickly and correctly on an objective after its capture. The enemy capitalized on this by executing prompt counterattacks. The result was that we often lost the terrain and had to repeat the operation. Our chief difficulty was that our plans and orders failed to include specific instructions for reorganization. We were content to plan our support fires and maneuver only up to the time of taking the objective.

Field orders, particularly at company, platoon and squad level, must include detailed instructions for the reorganization phase. Every squad and crew-served weapon must have its position area and sector of fire (on the objective) assigned before the attack begins. When landmarks and assigned areas on the objective are not visible from the OP or LD, reorganization can be accomplished through the use of the "clock system."

Extended Front. Many commissioned and noncommissioned officers of WW II experience had never

participated in a sustained defense. Since they lacked practical experience in the tactics involved, they learned the hard way in Korea. On the early Taegu-Pusan perimeter our defense sectors were usually three or more times wider than had previously been considered normal. At first units attempted to cover extended fronts by spreading out in order to physically control the entire area. This naturally resulted in a lack of control, insufficient depth and inadequate fire support.

Individual positions on these stretched-out fronts were usually small, uncovered fox holes. Persuading men to place overhead covering on their positions required tremendous effort on the part of commanders. Tactical wire usually ran parallel to the front and so close to the positions that enemy patrols easily moved within hand-grenade distance.

Getting information about the enemy created another problem. A high percentage of our reconnaissance patrols failed because of improper use of terrain and little, if any, technique. This is the same story we heard in WW II. The blame, however, does not rest entirely on the patrols. The responsible headquarters often did not limit the patrol to a simple mission that was capable of being accomplished. In many instances the headquarters failed to allow sufficient time for planning, briefing and rehearsal.

Many of the patrols sent out by companies had no one capable of adjusting or calling for artillery or mortar fire. The same thing often happened in WW II. To correct this our NCO's (or for that matter all Infantrymen) should be taught fire adjustment through *actual* experience NOT THEORY.

Retrograde. The early history of the Korean War is filled with examples of "disasters" caused by small-unit attempts to withdraw when the enemy got behind them. These withdrawals were, for the most part, uncoordinated "mob-like" movements. To prevent a recurrence of these fiascos we must remember:

1. That no unit withdraws until ordered by the headquarters which assigned its original mission.

2. That a higher headquarters can provide assistance and has the capability of doing so.

3. That a thorough understanding of perimeter defense is essential.

Patrol Bases. These are actually an adaptation of our general and combat outpost system tailored to fit the Korean terrain. They were used in WW II (Italy) but only recently became a standard technique.

We have found that a battalion-size patrol base can, by establishing a perimeter defense on terrain dominating avenues of approach, do the job of a general outpost. Patrols can be sent out from such a base without the time-consuming effort required in mountain terrain to move from an MLR. Another advantage is that a patrol base is less vulnerable to night attack.

Here are a few additional facts about patrol bases. Its size should depend upon the distance from the

MLR. For example, for distances of less than 3000 yards forward of the MLR a reinforced company may be adequate. For greater distances a battalion, or in some cases a regiment, will be needed.

* * *

By this time I'm certain that many of you with WW II experience have recollections of similar "lessons," and those of you who learned yours in Korea vividly recall most of what I've said. The important thing, and my purpose, is to get these lessons out of the files and into training. We may not always be able to afford the doubtful luxury of repeating "old" mistakes.

'Infantery' . . . . . Queen of Battle

"The Infantery," said Francis Bacon, "is the nerve of an armie." This is a surprising statement when one remembers that it was made in 1612, before the days of grenades, foxholes and high powered rifles.

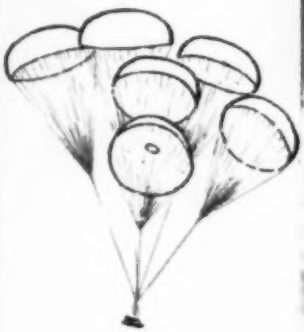
In those days Cavalry was considered the elite branch of the service and for hundreds of years had in fact been supreme. A group of men on horseback armed with swords was an awesome thing to a foot soldier. By 1612 the power of the "Infantery" had grown until its impact was felt in every battle.

The finest foot soldiers of the day were the Spanish pikemen and from them the word "Infantry" was derived. According to the story, during the Fifteenth Century the Moors captured the king of Spain. His son, the Infante, gathered a corps of picked foot soldiers who fought their way into the Moorish castle and rescued the king. When the mission was completed, the troops remained together as the nucleus of the Spanish Army. From then on they were known as (or called) the Infante's men, or the Infantry.

For two hundred years the Spanish pikemen held the respect of Europe and the Infantry reached its rightful status with the other branches of the army. Their pride and bravery lived on in the Grand Army of Napoleon and the campaigners of Wellington. Today the Infantry stands second to none and the U. S. Infantryman is the nerve of the army.

— Cpl Norman S. Poser

Supply by Air



by Captain Rolland A. Dessert

What every Infantryman should know about Aerial Supply.

"THE enemy cut the road behind us. We tried to ram through his road block and got set back on our heels. There was no doubt about it, we were cut off. So what did we do? Well, we buttoned up, depended on air supply and hung on until the reserves got through."

That's what a friend of mine, an Infantry company commander who had served in Korea, wrote. I'd like to emphasize one portion of what he said. ". . . depended on air supply . . . until the reserves got through." I think this points up the importance of air drop supply as a means of keeping a unit alive and fighting when no other means of supply is possible.

On the other hand, air supply — is not necessarily an emergency measure. Frequently a unit's mission is such that it precludes the use of the usual methods of supply. Take the case of the 5307th Composite Unit (Provisional), better known as "Merrill's Marauders" of World War II fame.

The "Marauders" had the mission of penetrating deep into the jungles of North Burma in advance of the main body of General Stillwell's forces to effect an opening of the Burma Road. In order to accomplish this task, the "Marauders" worked deep into trackless jungle which made normal resupply impossible. The unit was totally dependent upon air drop for their supplies. Cargo planes brought in all their ammunition, food and equipment and liaison planes evacuated the sick and wounded.

These two cases indicate the importance of air drop. What isn't apparent on the surface is the Infantryman's responsibility for receiving supplies delivered by air. The "Marauders," for example, worked out a very effective air drop SOP. Let's examine only that portion devoted to "Clearing the Dropping Field."

"1. One rifle company will be used for labor in the dropping field.

"2. After the drop, men rush on field, cut chute cords, remove chutes and hide them in woods so they can't be seen from the air.

"3. Bundles marked for regiment or not marked at all will be placed at the regimental stake on the field. Supply officers work in their own area making distribution of bundles dropped in their area.

"4. Mules will drop loads in their bivouac area, mules will be returned to drop field with three men per mule, one to hold mule, two to load. Take mule on field quickly, load it and get off.

"5. Each combat team will have

TO: CG, 22d DIVISION; ATTN: G-4			
FROM: CO, 301ST REGIMENT			
PRECEDENCE: EMERGENCY	CLASSIFICATION		DATE/TIME SIGNED: 201300Z33
AUTHORIZED TO SEND IN	CLEAR [X]	MOD CLEAR	SIGNATURE AND GRADE OF DRAFTER
SIGNATURE: Hogan Col			Rupert Maj
COMMCEN USE ONLY	TIME FILED	COMMCEN NO.	HOW SENT
MESSAGE: REQUEST AIR SUPPLY: 1500 81MM HE#; 100 CASES C-RATIONS; 20,000 ROUNDS .30 CAL M-1 BALL; 500 GALS. GASOLINE. TIME 210800 APRIL DZ ABLE MN031754 CHANNEL 143.28 CALL NECKTIE 9. ALTERNATE 143.91 NECKTIE 13. ESTIMATE 1000 ENEMY WITH SMALL-ARMS DUG-IN HIGH GROUND NORTH CROSSROADS 153.			
NME FORM 202, 1 MAY 49	FIELD MESSAGEFORM		(Submit in Duplicate)

Figure 1.

one SCR 536 with an operator at their stake."

There is, of course, much more to the air drop SOP, but this portion illustrates one phase of the Infantryman's responsibility in the matter. Actually, there are several items about air drop supply that all of us should know, whether or not we anticipate an immediate need for it.

Air Supply Request

The first thing of interest to us is how do we request air drop supply? This is accomplished by an air supply request — which may be by radio or by message as shown in Figure 1. Regardless of how the request is sent, there is certain information that must be given if you expect to get what you need, where and when you need it. The request must include what you want and how much of it is needed, as well as the grid coordinates, code letter and marking of the drop zone. It should state the desired time of drop and any late information of the enemy that might affect the aircraft as it flies over the drop zone. Remember to include frequency of the radio channel you'll be using as well as its alternate.

This request is sent by the fastest means available to your immediate commander. (For details, see Figure 2.) He in turn will forward it through normal supply channels by radio to field army headquarters. Here the request is approved and passed on to a coordinating group

called the Joint Airlift Coordinating Committee. This committee assigns the mission to a specific troop carrier aircraft unit and will include in its message the information you gave in your request. This committee also tells the Quartermaster Air Supply Unit the number and type supplies that must be prepared for aerial delivery and the deadline they must meet. When necessary, the Transportation Corps will be notified to truck in required supplies to the aircraft loading base.

The Drop Zone

The next consideration of importance is the drop zone itself. It should be as flat and clear of trees and obstacles as possible, and it must be large enough to accommodate your supplies (about 1000 yards long and 500 yards wide for a reinforced Infantry battalion). The entire air drop area must be defended with as many troops as possible and its perimeter organized as dictated by the terrain.

At this point it will be of interest to refer to the "Marauders' " SOP for drop zone defense.

"1. The I & R platoon blocks each end the trail at least 1000 yards from the field.

"2. One rifle platoon defends from 180° to 360°.

"3. Machine gun sections will box the drop zone area with fire lanes cut.

"4. Mortars will prepare barrages in front of the platoons blocking the trail, on approaches to the drop zone and on the field itself.

"5. The defense position will be dug in and mules kept in ditches or covered positions.

"6. One air liaison officer will report to Lt Jones, Asst S-3, at Regimental Headquarters one hour before the schedule air drop for aircraft identification."

This SOP indicates how specific this unit was in giving instructions for the defense and protection of its drop zones. Here are a few more items to remember:

1. Be sure to defend all possible tank approaches.

2. Select an alternate drop zone. (This is just in case the enemy has the capability of overrunning your primary drop zone.)

3. Check the air approaches to and away from the drop zone. If the drop zone is closely flanked by very high ground, it may well prevent the supply aircraft from safely coming down to the usual drop altitude of 1000 feet to deliver supplies or from pulling upwards after delivery.

Coordination

Our next consideration involves the matter of coordination. It is particularly necessary to coordinate with your "high angle of fire" support weapon, especially artillery. Check with the artillery liaison officer — and have him make certain that he forwards the estimated time of arrival and flight route of the resupply aircraft to your support artillery. This precaution is essen-

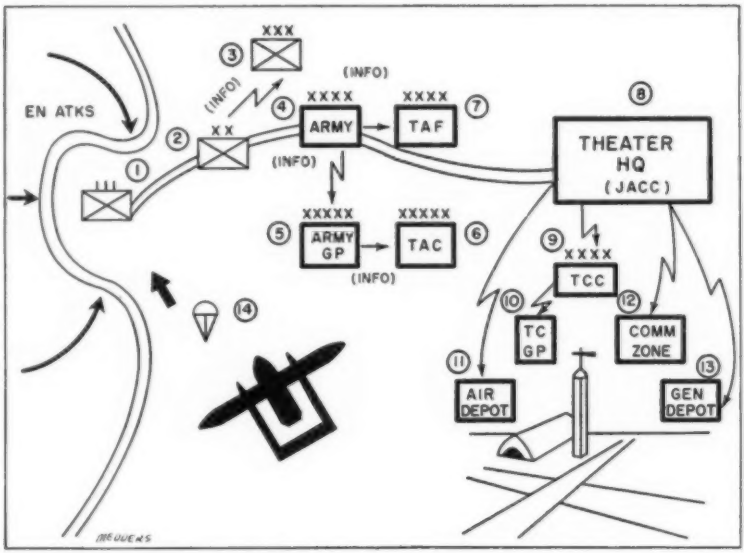


Figure 2. Request Channels for Air Supply.

(1) Air Supply Request sent by fastest means from **Regimental Headquarters** to . . .

(2) Division G-4, where message is monitored. After G-4 has ascertained that no other supply means are available, he forwards the request by fastest means to . . .

(4) Army G-4,
. . . who notifies . . .

[**(3) Corps Headquarters** monitors the call for information only.]

(5) Army Group (if applicable)
(6) Tactical Air Command } information only.
(7) Tactical Air Force Headquarters

Army G-4 approves request and notifies the requesting division of this approval and other pertinent details. He forwards the request on to . . .

(8) Theater Headquarters. Here the Joint Airlift Coordinating Committee (JACC) plans the air supply operation. It phones an operation order implementing the request to . . .

(9) Troop Carrier Command Headquarters, which translates the operations order into a specific air supply mission for one of its . . .

(10) Troop Carrier Groups.

Meanwhile, if supplies requested are not readily available, JACC will contact . . .

(11) Air Depots;

(12) Communications Zone Headquarters; and/or

(13) General Depots —

to get needed supplies to the Air Force Base that is specified in the plan. Once transported there by rail and truck by Transportation Corps units, the supplies are packaged for aerial delivery by Quartermaster Corps specialists.

(14) Finally, the supplies are outloaded, flown, and air dropped at the drop zone by Air Force personnel.

tial to insure delivery of your supplies and the safety of the aircraft.

Communication

Look back at both excerpts from the "Marauders'" Drop SOP. You notice that it carefully spells out specific means of communicating with the aircraft.

There are numerous methods of communicating with the supply planes.

The use of the several means I will mention depends largely upon what is available when the need for aerial resupply arises. There may be a Tactical Air Control Party. If one is near at hand, have its controller guide the aircraft in using his VHF (very high frequency) radio. If a TACP is not available, use the AN/TRC-7 (see [F] Figure 3), which is now standard at battalion and higher. This radio is designed specifically for ground to air communication. The pilot will use his AN/ARC-3 radio to communicate with this set.

The "Track-7" as you often hear it called, provides two pre-set frequencies and therefore has two channels. (Note that our resupply request must specify these two channels, one as a primary and one alternate.) The AN/TRC-7 is a portable radio weighing 35 pounds. It transmits AM signals a maximum of 20 miles, using the short "whip" antenna. The large antenna will provide a longer range, up to 50 miles. It uses BA-70 or BA-80 batteries and also can be set up for

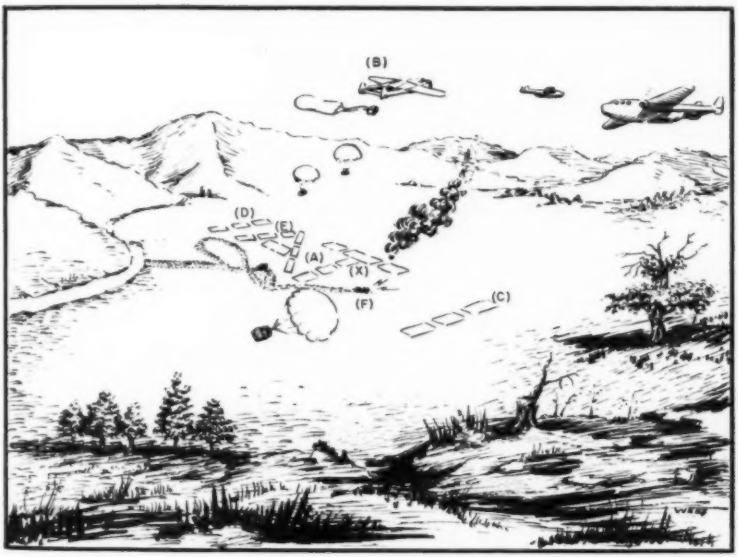


Figure 3.

generator operation, both for transmission and receiving.

Should you need to, you can communicate with any Army aircraft that might be nearby by using your PRC-10*. The pilot will (upon request) transmit your message to the incoming "supply" plane using his air to air radio.

Panels

To identify the DZ for the pilot, place a colored panel display or "Tee" (A) on the ground (see Figure 3). Remember when selecting the location of the Tee that you should estimate wind drift. If it's possible to do this, your supplies will drift to a point close to where you want them. If there is doubt as to what the drift is, just mark the center of the DZ and the pilot will try to compensate for drift. The ideal, of course, is that the pilot of the aircraft (B) will fly a course up the stem of the Tee and release the supplies over the intersection of the stem and crossbar (X) of the Tee. The stem indicates the direction of flight to the pilot and the crossbar the desired point of release. Pilots in C-46's, C-47's, and C-82's cannot see directly below them. The side panels (C) and (D) indicate "go-points" for these pilots as well as mark the lateral boundaries of the drop zone.

The code letter (E), a visual letter made up of five panels, identifies your particular DZ for the pilot. Neither the code letter nor the color of the panel should be left to chance. Your regimental headquarters provides a set of current Signal Operating Instructions which will specify your specific code letter and the color panels you are to use for any particular day.

Use of Smoke

When smoke is available, use it by all means. Why? Well, smoke indicates to the pilot whether or not there is a "ground" wind of any significance. It also serves to show wind direction and to an extent indicates the velocity of the wind.

Clearing the Drop Zone

Again let me refer you back to the "Marauders' " SOP for "Clearing the Drop Field," which mentioned the recovery of equipment and the pre-planned organization for accomplishing this task. Whether yours is an emergency drop or the regular means of resupply is immaterial, the point is that recovery teams must be organized. No SOP can be given. The number of men or trucks used will depend almost entirely upon what's available and your tactical situation.

One thing that must be remembered. Don't let the parachutes and containers lie on the field. Don't forget to recover them as well as your supplies. They're expensive (ranging in price from $60.00 for the smallest parachute to more than $1500.00 for parachutes used to deliver heavy equipment such as ¼-ton trucks and 105mm howitzers) and often they are quite scarce. Men have a tendency to appropriate these items (especially parachutes) for scarves and souvenirs.

* This is the replacement for the SCR-300.

The Drop

Now consider the drop itself. Remember you sent a supply request to your commander. We will assume that it was approved and that you've been notified of the time to expect the air drop.

To effect maximum coordination, your radio team should be located near the "Tee" (A) (see Figure 3). When your observers spot the aircraft — you should again check that all high angle fire will cease as previously planned. Start up the smoke, and contact the pilot by radio and brief him on the conditions on and near the DZ. Point out any possible danger areas as well as wind direction and velocity if you can determine it.

From the details you gave on your original supply request and the supplemental information you give him via radio just before the drop, the pilot will decide what, if any, changes are necessary in his flight plan. In any case, when he does drop the supplies you must make certain recovery teams are on hand to pick up the supplies.

The object at this point is speed. Get both your men and supplies off the DZ quickly. The enemy will, if he is in a position to do so, try to clobber the location with artillery and mortar fire.

So you see, it's quite simple. Just follow the procedures I've outlined, and you'll get your supplies. It doesn't matter if air drop is your planned means of resupply such as it was for the "Marauders" or whether it's an emergency measure as it was for the company commander in Korea.

Air supply then can help you — the foot soldier. But only if you're ready to receive it. Remember the points I covered and you'll do all right.

Items that have been dropped by parachute in Korea:

Rations
Ammunition
Water
¼-ton 4x4
¾-ton 4x4
105mm Howitzer
90mm SP antitank gun (18,000 pounds)
A 35,000-lb. M2 treadway bridge (delivered in eight sections)

Fire Blanks with the Light Machine Gun

Mr. Ray S. Miller

There have been other blank fire attachments, but none so satisfactory.

IT BECOMES increasingly necessary to find means of trimming the cost of realistic combat training without decreasing its effectiveness. This, in turn, points up the need for a satisfactory blank firing attachment for use with the 1919A6 light machine gun.

The idea of having a blank firing attachment for the light machine gun is not new; there have been many types of attachments used with varying degrees of success in the past. The experience gained from the use of past models, however, gave the Post Ordnance Shop at Fort Benning a basis for a new design.

In 1950 we went to work. After a year of experimenting, we produced a new blank firing attachment that has now been in use over a year at Fort Benning and has proven eminently successful.

As a result of use on problems and in demonstrations, we have gathered these facts about the blank firing attachment:

1. It produces the sound characteristic of light machine gun fire.

2. It permits realistic use of the weapon in demonstrations and in battle indoctrination courses.

3. It reduces the cost of training by eliminating the use of ball ammunition.

4. It does not require the use of a range.

5. It requires only the conventional A6 combination tool to install or remove.

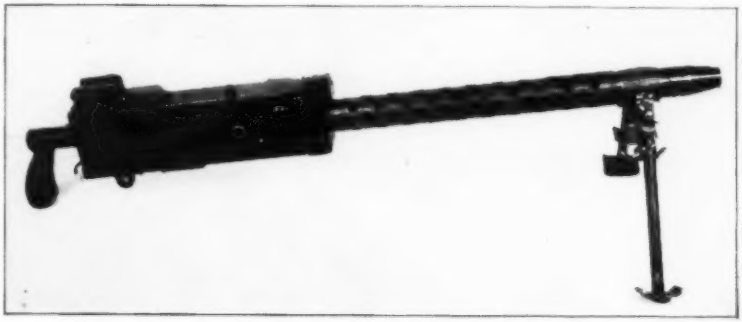


Figure 1. M1919A6 Light Machine Gun with blank firing device attached.

In examining Figure 1, notice that the standard barrel bearing must be removed from the machine gun before the blank fire attachment can be used.

The standard barrel bearing is replaced by a new barrel bearing with a three-inch extension on its front. On this extension are six holes which serve as release ports for excess gas. (See Figure 2.)

Starting in line with the six gas release ports, are six spiral slots. These slots prevent exhaust flame from blowing into the gunner's face by deflecting it at right angles from the gun barrel. It also removes much of the carbon from the barrel when the weapon is fired.

When you use the new blank firing attachment, remember:

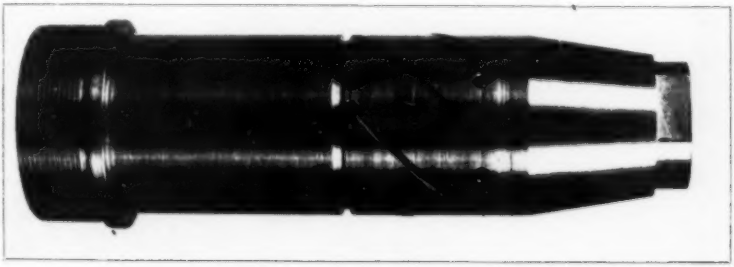


Figure 2. The standard barrel bearing is replaced by the bearing shown above. The slots deflect the exhaust flame at right angles to the gun barrel so that the firer is protected from burns.

1. Experience shows that when the attachment is used for prolonged firing the exhaust slots and gas ports tend to fill with carbon. At the end of each day's firing, the attachment should be thoroughly cleaned and placed in a mixture of

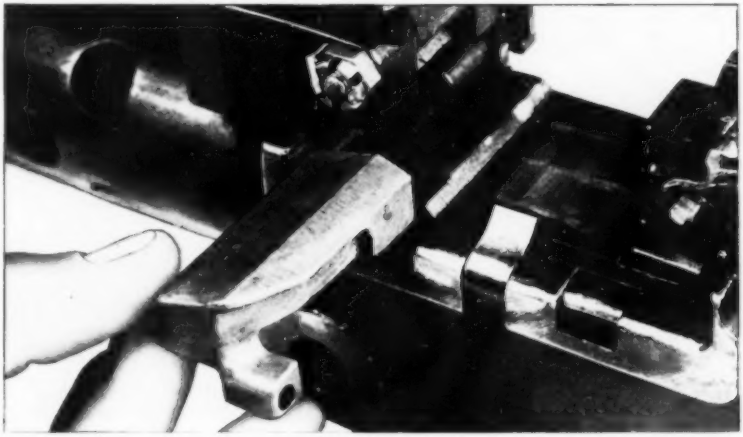


Figure 3. Use of a short round block insures proper feeding of blank rounds.

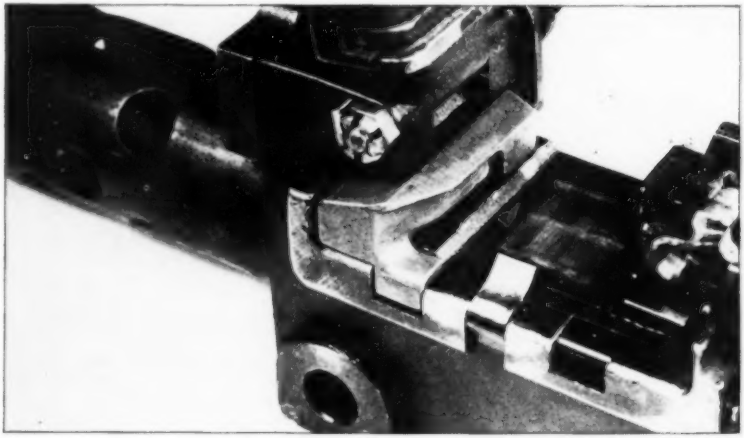


Figure 4. Short round block in position.

solvent and oil. Before use, it should be thoroughly dried.

2. Use at Fort Benning indicates that the attachment functions best when the headspace adjustment is loose. However, since individual weapons vary slightly, it is best to adjust headspace and test fire be-

fore allowing students to use the weapons.

3. Since blanks are shorter than ball ammunition, the blank rounds tend to hit the side of the chamber. To offset this tendency and to permit proper feeding, a small steel "short round block" must be used.

When you requisition this "short round block" from your local Ordnance supply officer, ask for the B7162248, stock short round component part of A006-55-45973.* (See Figures 3 and 4.)

Those who have used the new blank firing attachment with the 1919A6 light machine gun report it mechanically satisfactory and a great aid toward achieving realistic "combat type" training without increasing training costs.

The blank firing attachment described in this article was developed for use at The Infantry School by Mr. Ray Miller, who is Armament Shop Superintendent at Fort Benning. No details of construction are given since the attachment (with minor modifications) will become an item of issue — exactly when is not now known. — Editor.

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* A006-55-45973 is an item of issue, ordnance blank fire attachment kit. This kit is an earlier model of the blank fire attachment discussed in this article. The only item you need from the kit is the B7162248 "short round block."

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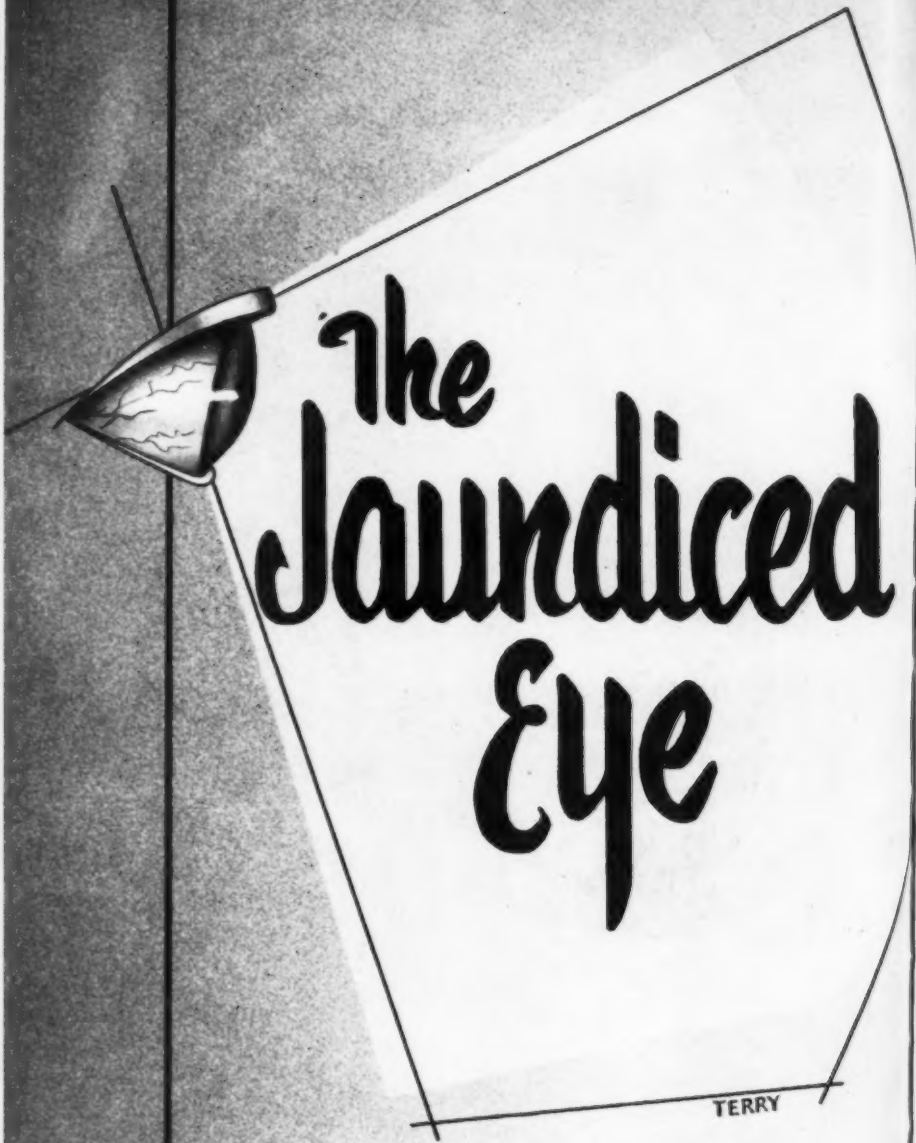

The Jaundiced Eye

by Maj Kenneth G Groom

illustrations by the author

✔ You don't have to be a general to be economy-conscious.

WE'VE ALL HEARD THE slogans and catch phrases used in conjunction with various drives for "Supply Economy," "Conservation of Materiel," "Manpower Surveys" and so on — but apparently, judging from the waste that continues, none of us has been impressed to any great degree.

I believe that if every officer and noncommissioned officer were capable of first detecting waste and second, correcting the cause, we could save millions of dollars with no adverse effect on the efficiency of the Army. On the contrary, the result would be sure to raise our standards of performance in all phases of operations.

"Well, I'm no regimental commander. Sure I see waste, but whatever I might try to do will be overruled by someone higher up — and my efficiency report means more than that to me." Many of you are thinking along this line. Yes, you're right — and **you're wrong.**

Let's look at it this way. If you and you and you — and every officer, non-commissioned officer and man in the Army would remember that **your** taxes are paying for waste, perhaps the picture might look a little different. As a married major with only one exemption, I could have bought a new Buick with my income taxes for 1950-53!

A drop in the bucket, to be sure, as far as the Federal Budget is concerned, but it hits close to home, doesn't it? As I intimated at the outset, before constructive action can be taken concerning suggestions on how to eliminate waste — each of us has to have a "boss" who is willing to listen. Let's assume that we have one like that (and most of us do); just how do we start?

Economists tell us that the best-paid efficiency experts in the business world are those who look at everything with a "jaundiced eye." Manpower, machines, space and time all represent dollars. Considering the mission, or job to be done — which comes first in both military and civilian fields of endeavor — the expert analyzes the tools available and methods used. Unnecessary repetition, waste motion, duplication and poor planning are monsters which feed at the trough of federal expenditures.

They are not always apparent at first glance, but a little patience and digging usually brings them to light. Let's review a few of these "indications" as they apply to the everyday foot soldier, and I think you'll see what I mean. Remember,

I'm talking about little things which are seldom noticed, because we're too busy concentrating on the more obvious job at hand.

First we'll take a quick look at a lieutenant who shall remain nameless. His gift from the Almighty consisted in an ability to see these "little things." He had a discerning optic — or as I would prefer to call it from the standpoint of supply economy — a "jaundiced eye."

Not long ago he visited his Post Headquarters late at night to sign in from leave. It was 2300 hours and every light (flourescent, no less!) in the building was lit. It looked like Coney Island in the middle of August. Two custodial employees were taking a break near the "sign in" book and our friend asked casually why the place was so brightly illuminated.

"Well, we have to sweep the floors and empty ash trays, so we light 'em up until we're through." The lieutenant reported this situation as being wasteful of electricity, and the system has been drastically modified. A small point, you say? Multiply that power waste 50 times and determine the saving in dollars. That was the actual result of this officer's alertness.

How many of you have walked into a sunlit barracks and have seen all the ceiling lights burning fiercely? Did you take any action? Probably not. Another great consumer of electrical power is the civilian employee. Here's how he does it. Joe Able is employed at the Post Engineer Warehouse. For security reasons, the warehouse area must be kept illuminated during hours of darkness. Joe finishes work at 1630 hours and is charged with flipping the switch for these lights at this time.

That's fine in the winter time when it gets dark early, but here's where the waste occurs. For about half the year in most parts of the country, it doesn't get dark until 2030 or 2100 hours. Get your pencil out and figure the dollars wasted in a year while the bright lights compete with rays of the late afternoon sun! There's room here for a little change in the "system," don't you think?

To further illustrate this unintentional waste, I noticed a "Supply Economy" billboard one time which had a large stage type spotlight shining on it so that all could see and take heed. The fact that the spotlight was shining brightly at two o'clock in the afternoon apparently surprised not one of the hundreds of officers and men who passed by it until I came along. It was promptly turned off and was later removed entirely.

Improper use of vehicles often results in wasted dollars to a staggering degree. How many of you have blithely walked by an Army truck in a training area on a cold day and noticed the engine running while the driver sat unconcerned in the cab reading his comic book? He's been parked there since seven o'clock this morning, and he'll be there all day. As long as he continues to waste government gasoline that way, the heater will function and he won't have to be burdened by wearing that big, warm, $75 Army overcoat lying on the seat beside him. Wear and

tear on the engine plus gasoline at 30¢ a gallon adds up, doesn't it? And that's just **one** vehicle!

Now when you talk about tanks, you're really talking big money. In spite of all the new easy-to-operate gadgets (including automatic transmissions) found on modern tanks, if a potential driver-trainee receives inadequate instruction and supervision before he attempts to drive, great damage will result to the engine and working parts. Entire transmission assemblies have needed replacement as a result of driver abuse, at a cost of thousands of good American tax dollars.

A medium tank consumes about three gallons of high octane gasoline per mile. Training areas planned nearer the tank sheds (where possible) could save money by reducing not only fuel consumption, but also engine wear and travel time for personnel involved in the training. Do you tankers see any room for improvement in this field?

Before we leave the subject of vehicles, it's only proper that the word "maintenance" receive at least passing mention. How many officers have ever bothered to spot check the oil level, water, brakes, horn or tire pressure of one of their vehicles — except, of course, during scheduled inspections? Here again, "indications" or "little things" can often tell interesting stories to the discerning supervisor.

How many vehicles have deteriorated, because units were without qualified driver and maintenance personnel? Why can't such talent be "pooled" and extra vehicles either turned in or put in storage until needed? Look around, commanders and motor officers, particularly those of you in stateside units which have fallen below authorized strength.

"Vehicular hoarding" is bad enough, but let's take a look at Sgt Baker, better known as "Pack Rat" among his friends. He considers himself a successful supply sergeant — and why? Because he is **over** on sheets, **over** on cargo packs, **over** on this item, **over** on that. He has a secret hoard which only he, the company commander and first sergeant know about. He has, in the supply vernacular "trading material" — which will put him in good stead with the old man when it comes time for the annual IG inspection.

Multiply these items by several hundred and you have useless equipment and stagnant dollars.

Mountainous stacks of miscellaneous items of equipment have been recovered by major unit commanders who organized "voluntary — no questions asked" turn in points for excess equipment. Look around the supply room, Captain, then sit down and discuss it with your conscience.

A good deal of equipment abuse can be eliminated through the application of plain, ordinary common sense. Service Schools and training units, for example, use hundreds of charts, working models and mechanical training aids as well as various types of projection and sound equipment. Most of these things wear out not from actual use, but because they are carelessly loaded and transported in the back of a jeep or 2½ ton truck.

Perhaps some of this unnecessary wear and tear can be avoided at your installation by collecting, repairing and then storing them in centrally located sheds nearer the training areas. Needless to say, individuals handling these "transferred dollars" are to be cautioned, then checked and double-checked.

Every dissertation on supply economy invariably dwells on the officer's responsibility of supervision, and this one need not be an exception. I'll go one step farther, however, by taking to task the "forgotten man" in the Army today — the company commander. As his responsibilities increase at the same rate as his authority seems to diminish, he is often found complaining that he can't do anything anymore.

Well, let's take a look at the good captain during a Saturday morning barracks inspection and see what he can do about these little things that we've been talking about. The beds are made and look quite military with their "hospital folds" in proper alignment. If he would lift a few mattresses, however, he'd see that the bed springs are in a bad state of disrepair. A little thing? Let's analyze it in more concrete terms.

Pvt Charlie Fox's bed lacks six small connecting springs. The private sleeps uncomfortably and, as a result, is irritable and even gives the cooks a hard time when he's on KP. His efficiency is decreased and his morale lowered. The mattress cuts against the sharp side of the bed and eventually becomes misshapen; finally it must be replaced. The remaining springs are stretched beyond their normal limit of endurance and eventually they,

too, become useless. In terms of money alone, I'm sure you'd rather buy a dollar's worth of springs to-

day than a hundred dollars' worth tomorrow. So would Uncle Sam!

Moving along in the barracks, the captain notices that while the floors are polished, they don't shine the way they used to. "Getting old, I guess," he thinks to himself as he walks from the room. If you looked closely, old man, you'd notice that the floors are beginning to deteriorate all right, but not because of age. All week long they're wet. Why? Water is sloshed on and never removed properly — and the water, over a long period of time, has caused the wood to soften and rot (or in some cases, harden and crack). That wax, then, is literally poured all over the place (at $1 a quart), on Friday night to "make it look good." In a few more months you can call the Post Engineer. He'll be glad to receive your work order for a new floor!

Next, the supply room. Obviously we can't touch upon all the ways by which dollars may be dribbling away in this hallowed sanctuary. Let's just glance around and pick out one item. Here we are, right next to the door. Three electric fans have been stored on a shelf for the past six months. They can't cost any money sitting there, you say? Look closely! No one bothered to cover the blades and motor assembly. There is enough dust and dirt in the moving parts to require a complete overhaul on each of them before they'll be available for use next summer. And the civilian technicians who make such repairs

are paid two (or is it three?) dollars an hours of your tax money, captain!

As he approaches the orderly room, he hears a mimeograph machine thumping away. It was borrowed by the company clerk from battalion, so you don't have to worry about it, captain. As the saying goes, "I don't care as long as I'm not charged with it." If you only realized it, that soldier hasn't been told how to control the ink flow on this gadget, and as a result, half his papers are either blotted or blank. He doesn't worry, though, he still has two or three reams of paper — and if he runs short, he knows "who to see" to get more. When he does learn the trick, he'll throw a few more dollars away by making up 300 copies instead of 200, "in case we need a few extra."

Looking at his training schedule,

the company commander realizes that range firing is scheduled for most of the week. Because the range is a couple of miles away, he plans to send about 30 men out early each day to organize things before the company arrives. These individuals will be provided with "box lunches" so that they can remain at their jobs all day.

He doesn't know it, but those lunches will provide mid-morning snacks for most of the men. They've already arranged with the cooks to slip into the chow line and eat with the rest of the company if they can get away. Will you draw a double ration for those people all next week, captain? Or will the others be "short-changed" in the chow line? Either way, you're wasting money which could serve a better purpose.

Satisfied with his schedule, the company commander decides to check the arms racks. He's particularly interested in the M1 rifles, since he has about 127 of them in the company. Picking a rifle at random, he inspects the bore. "Hmmm — looks pretty good. It's pitted, but most of them were that way long before I drew them. They've got lots of life in them yet."

Whether he realizes it or not, 90 percent of the rifles declared unserviceable by the Ordnance Department arrive at that unhappy state solely because of **neglect** — not through actual firing! Improper supervision to insure proper cleaning after use is, of course, the main reason for this. That "light coat of oil" serves to camouflage fouling. All weapons should be inspected dry — then the oil should be applied as a preservative to prevent rust. Remember this rule. Always inspect weapons **dry** after cleaning. Insist on further cleaning where fouling is evident.

Oil preserves the metal by preventing rust, but you can't see fouling through a coat of oil. Don't believe the stories about "non-corrosive primers." We're still using up case lots of the old type. This means a thorough job of bore cleaning for three successive days after firing. An alert inspecting officer (or noncom) can add years of life to the rifles and other weapons in his unit.

The one experience I particularly remember as a company commander concerns the mess hall. I'm sure you have encountered the same thing at one time or another. I was directed to insure that the garbage be carefully sorted and that extreme care be taken not to mix bones with coffee grounds, paper with edibles, and so on. Individual cans, properly labeled, were provided and the order was carried out to letter.

When the garbage truck arrived, however, the whole system collapsed. All the cans were emptied into a common heap and our little signs were completely ignored. I don't know what we accomplished — but I'm sure that the saving which might have been realized certainly never came about, through any stretch of the imagination. Here you have an example of a good order, improperly executed, with no supervision or "follow through" to insure success.

You've probably realized at this point that the wasteful practices which I've mentioned could all have

been avoided simply through the application of common sense. You don't have to be a general officer or possess a Ph.D. to develop a "consciousness" to detect waste. Since economy must be part of everyone's individual code, the soldier should appreciate simple examples as to **how to save** rather than be subjected to a constant bombardment of trick phrases and colorful posters.

The company officer, I believe, is our key man in this effort. Above all, he must be backed 100 percent by those upon whom he must rely for administrative (and possibly disciplinary) action. Discuss your program using concrete facts — not hypothetical cases sometimes hard to believe. And as far as I am personally concerned, I'm doing all I can to avoid having to buy Uncle Sam another new Buick!

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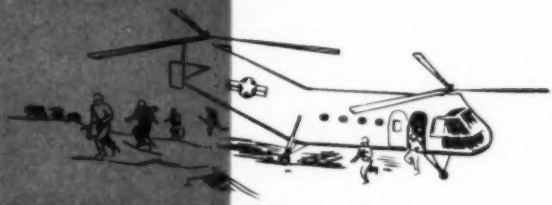

by Capt. Bickford E. Sawyer, Jr.

Helicopters hover.

Raiders disembark . . .

THE Marine pilot crash-landed 70 miles behind enemy lines, and within minutes a rescue helicopter was hurrying northward to the scene. By the time it arrived, the pilot, surrounded by Chinese Communists, was fighting for his life. Taking little heed of the enemy fire the helicopter swooped in, picked up the pilot and sped safely away. The Marine pilot and one crew member were slightly wounded in the rescue.

The success of the helicopter in rescue missions is no longer news. It takes little imagination to visualize how this aircraft could be used in other similar operations — a raid, for example.

In Korea many of our small raids have been unsuccessful and many times the number of casualties has been alarming. We have suffered by far the greater number of these casualties during the execution of the withdrawal after the mission has been completed.

Why not use helicopters to withdraw our raiders? Granted it is one matter to rescue a downed aviator and an entirely different thing, with enormously greater risks and complexities, to pick up a group of men using several helicopters. Special techniques, however, can be used to overcome much of the risk and most of the complexities.

Several different techniques may be used in a helicopter-borne raid. None is inherently better than the other, and each should be tailored to fit the particular situation at hand. Here are a few possibilities:

1. The transport helicopters land the raiders at a secluded spot near their objective. The raiders move to their objective, carry out the raid, and return to the helicopters.

2. The helicopters land the raiders, fly back to their base, and then return to pick up the raiders either at the same location or a different predesignated one after the raid is completed.

3. The helicopters land the raiders at a secluded spot and wait while the raiders perform their mission. When the raid is completed, the helicopters fly wherever directed to pick up the raiders.

Advantages and Disadvantages of Helicopters. Before going deeper into the tactical aspects of using helicopters on raids or considering the problems involved, let's take a closer look at the helicopter itself and determine the capabilities and limitations of today's craft.

Although the Army began using light helicopters for observation in 1947, the varied possibilities of the

helicopter did not become apparent until the outbreak of the Korean conflict. In 1950, the Army adopted the transport helicopter and formed helicopter companies.

Today's helicopter company may be equipped with either the H-19 or the H-21 helicopter. Regardless of the model, the company will have a total of 21 helicopters for transport and two for command and reconnaissance purposes.

The following table shows the capabilities of the two transport helicopters:

	H-19	H-21**
Troop Capacity*	7 fully equipped	20 fully equipped
Cargo Capacity*	1200 pounds	4000 pounds
Litter Capacity*	6 patients, 1 attendant	12 patients, 2 attendants

Both of these helicopters possess a power-operated hoist for raising or lowering passengers while the aircraft is hovering over the ground. In addition, both also have a cargo sling under their belly. A quick-release device enables the pilot to jettison a suspended load at any time or to instantly unload while

H-19 Helicopter.

hovering over the ground. By using the sling, the H-21 can carry such loads as 75-mm howitzers, ½-ton trucks, or jeeps.

Unfortunately, all of our present transport helicopters have a number of disadvantages. Here are some of the most important:

1. They are too slow. A more acceptable speed for cargo aircraft is around 200 mph.

2. Their range is too short. They should have a range of at least 1,000 miles, which is comparable to the C-46, the flying work-horse of World War II cargo aircraft.

3. They require too much maintenance. Each helicopter needs from 4 to 6 hours of maintenance per flying hour.

4. They cannot carry heavy loads. From a military standpoint, this is their greatest limitation.

But, we wouldn't use transport

* At an operating radius of from 50-75 miles, loaded on outbound leg only.
** Figures shown for the H-21 are based on the latest model to date — the H-21C.

helicopters today if their advantages did not far outweigh their disadvantages. The more prominent advantages are:

1. They require no specially prepared airfields or strips for landings and take-offs.

2. In comparison with conventional aircraft, they are affected to a lesser degree by strong winds and bad weather.

3. They can land safely in case of an engine failure. If an engine fails, the rotor blades will continue to whirl, producing enough lift to give the pilot complete flight control.

4. Cargo, loaded beforehand in slings or pallets, can be hooked under the belly rather than loaded inside. This saves time in loading and unloading. In fact, it is possible for a helicopter to make several supply runs without once touching the ground.

Helicopter-borne Raids. With or without helicopters a raid requires detailed planning, preparation, and rehearsal. Aerial photos, maps and terrain models should be utilized to the utmost in the planning phases. The rehearsals should take place on terrain that resembles the area to be raided. In addition, it is essential that the raiders rehearse with the helicopters. They must practice such techniques as loading and unloading rapidly and reorganization after landing. These rehearsals also give the raiders confidence in the helicopter's capabilities. All of these prior plans and preparations assure that each man knows exactly **what** he is to do, **when** he is to do it, and **how** he is to do it. During the raid itself there will be little or no time for hesitations or questions. Speed is essential! Every moment wasted gives the enemy another moment to recover from the surprise and shock the raiders have caused.

Employment on a Raid. The following example is designed to bring out some of the more important points to be remembered when helicopters are used to transport a raiding party.

An Infantry platoon has been given the mission of wiping out a suspected enemy command post in a small town in the enemy's rear area (see Figure 1). Its secondary mission is to seize any documents that can be found and, like most raids, it is to be a quick "hit and run" action.

The size of a raiding party will depend on the size of the objective and the number of enemy troops likely to be encountered. In helicopter-borne raids, however, only a small number of troops should be used. If a large number is required, the raid should not be made by helicopter. It is possible, in the future, that with helicopters which possess navigational instruments for night flying and have greater range, speed, and carrying capacity that large scale raids will be feasible. It is felt by the author, however, that the intricacies of the large scale raid are beyond the capabilities of our present two trans-

port helicopters.* The difficulties of gaining surprise and maintaining control and speed increase in direct proportion to the size of the raiding party.

In the raid under consideration, three H-21C transport helicopters are assigned to the raiding party. The raiding party consists of a rifle platoon less one rifle squad and three attached aidmen — a total of 39 men. There will be 13 men in each helicopter. The platoon is given 24 hours to make its plans and preparations and 48 hours more to rehearse with the helicopters. It will strike during darkness on the fourth day.

The Advance Party. At dusk on the fourth day a lone helicopter takes off from the raider base in the regimental reserve area. This helicopter contains the advance party which is composed of five men — three spotters, a radio operator, and his assistant. The flight is carefully planned so that the advance party will arrive over the landing zone when there is just enough light (Evening Nautical Twilight) to recognize it. The party should be landed as fast as possible. The approach and withdrawal should be executed at minimum altitude to give safety from enemy radar and observation. This helicopter returns to its base as soon as the men have unloaded.

Because helicopters are very difficult to navigate during darkness, the advance party becomes an essential aid to navigation. Each spotter is equipped with a colored flashlight and a different color is designated for each helicopter. The pilot of the red-designated helicopter, for example, is guided to his landing space by the red flashlight.

It is the radio operator's job to maintain contact by radio with the approaching helicopters. As they near the general vicinity of the landing zone, he hears the sound of their motors and directs them within sight of the colored flashlights held by the spotters. By using a predesignated code word the radio operator identifies himself to the pilots, thus assuring them that the enemy has not set a trap.

If the advance party system is used, there is no excuse, barring engine failure, for the helicopters to land in the wrong place. This system also provides a method wherein all helicopters can land simultaneously and in the proper formation.

The Raiding Party. Back in the regimental reserve area, the raiders are making their last minute preparations. As soon as the advance party's helicopter returns, or when radio contact is made between the landing zone and the base, the raiders take off. Their objective lies 15 miles north of our front lines. Through prior coordination with the joint operations center (JOC),

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* The Army Aviation Committee at The Infantry School does not necessarily endorse the author's opinion on this matter. It is felt that if the raid can be executed with three or four helicopters that it can be executed with a greater number. This holds true even today with our present type helicopters.

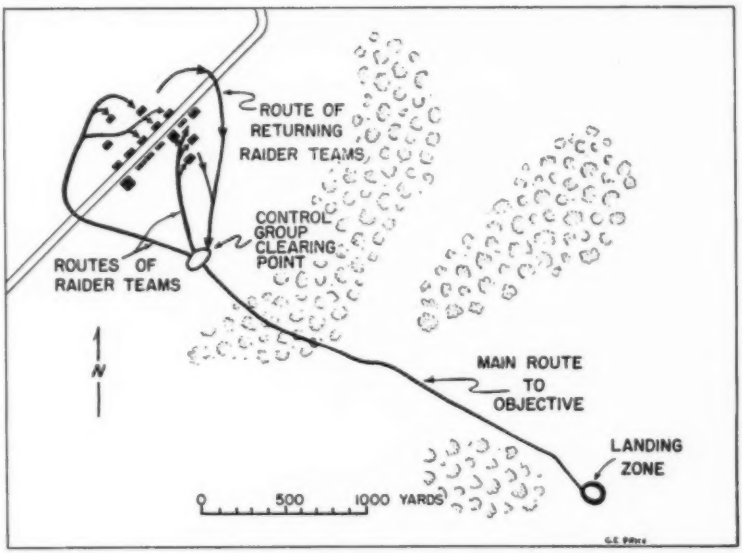

Figure 1. Plan of Maneuver.

the Air Force has provided fighter aircraft to act as cover. JOC is also responsible for notifying Air Force intercepter units of the helicopter flight.

The helicopters travel a circuitous route, heading first east, then north over our front lines and finally west toward the objective. Friendly units over which they will pass have been previously notified of the time and route of the flight. The circuitous route is designed to deceive the enemy and to avoid known enemy antiaircraft positions.

During the flight to the objective, the co-pilots navigate by using distinguishable landmarks to orient themselves. It is evident that this method will work only if there is enough light to see by. In this operation, however, moonlight provides the needed visibility.

As the helicopters approach the landing zone, they are guided in by the advance party. The troops unload quickly. The helicopters take off immediately and fly back to the base. Now that they have been delivered safely behind the enemy lines, the raiders are on their own. Leaving the advance party at the landing zone, they organize and move out in single file for their objective 2 miles away.

As the patrol nears the village, the column breaks into three groups — two raider groups of five teams each and a control group.

The control group consists of the platoon leader, two messengers, the

platoon weapons squad, the 3.5-inch rocket team, and the three aidmen. Its principal job is to assist the withdrawing raiders by acting as a clearing point for the returning raider teams. The control group is also armed to protect the clearing point from enemy searching patrols which may be seeking the withdrawing raiders.

Each raider group is composed of five teams of two men. Once the teams have jumped off, the control group ceases to control them. Moving with great speed and stealth, each team operates independently to accomplish its assigned mission. Each man is armed with a tommy gun, a knife, and several hand grenades. The teams move directly to the houses they have been assigned to clear. Nothing must stop them! Any resistance is either eliminated or by-passed, whichever is easier.

Each house is cleared systematically. One man in the team tosses a grenade through a window. As soon as the grenade explodes, both men rush in and spray the room with their tommy guns, and pick up any documents or maps in sight. As soon as its mission is completed, the team leaves the area by its planned route and returns to the control group.

The psychological effect of a raid such as this is terrific. The enemy is rarely prepared to meet the lightning-like attack of the raiders. In a matter of minutes the town becomes a pandemonium of exploding grenades and roaring tommy guns. Then almost before the enemy has had time to realize what is happening, the raid is over and the raiders have disappeared into the dark.

The Withdrawal. Each returning team reports to the control group. As they check in, they are assigned defensive positions in the control group's clearing point. Any wounded men are quickly treated here by one of the aidmen and then carried, if necessary, back to the helicopters. When the last team has returned or when, after waiting for a reasonable time, the platoon leader decides that one or more teams have been trapped and will not return, the raider teams move out for the landing zone followed by the control group.

To insure that his helicopters will be at the landing zone when he arrives, the platoon leader radios to the advance party that the raiders are coming in. He also notifies the advance party as to the approximate time of his arrival. (This time is based upon the time taken to reach the objective.) The advance party radios this message, in turn, to the raider base.

The helicopters, which have refueled at the raider base, take off so as to arrive over the landing zone at the same time the raiders come in. If the raiders are late, the helicopters circle high over the landing zone, awaiting the signal of the advance party to land. As soon as they receive the signal, the helicopters fly quickly to the ground, and the raiders load as rapidly as possible. The advance party loads with the raiders, and the helicopters take off within a minute or two after landing.

Do's and Don't's of Helicopter Operations. After having gone into the details of conducting a helicopter-borne raid, here are some of the most important "do's" and "don't's" to remember:

1. Never land on an enemy-held objective. Land near your objective and move to it on foot. Helicopters are extremely vulnerable to any kind of ground fire.* Don't risk losing your principal means of escape by carelessness.

2. Be prepared to lose one, or even all, of your helicopters. Make plans to have your raiding parties picked up at other location by other helicopters if necessary.

3. Helicopters may be used when weather conditions will not safely permit conventional aircraft to operate. The enemy is not usually alert during periods of inclement weather. You may catch him napping when you plan to operate in this type of weather.

4. Carefully select your avenues of approach to the objective. Avoid enemy antiaircraft positions. In daylight make use of clouds and concealing hill masks. The operation must be coordinated with friendly artillery and antiaircraft fires. Suppression of fires and establishment of "no fire lines" are coordinated through FSCC.

5. Provide for the security of your helicopters both when they are on the ground and in the air. If you choose to have your helicopters wait on the landing zone while the raiders accomplish their mission, a small detachment of men can give close-in protection. An escort of fighter aircraft can provide air protection.

Because of the helicopters' lack of navigational instruments, night operations are especially difficult and dangerous. There are several ways, however, to overcome this danger. The helicopters can be guided by radar and notified by radio when they are over their landing strip.** If suitable landmarks are available, the helicopter pilots can be oriented during daylight flight, but extreme care must be used not to give away the location of the objective.

The greatest difficulty of the raider is the withdrawal. The helicopter may well be the means of solving it. Under any conditions, raids will always be extremely hazardous. Each raid presents some new problem which the ingenious commander will have to solve himself. In the deep raid the parachute solved only the problem of reaching the objective behind enemy lines. Perhaps the helicopter can unravel the perplexing puzzle of the withdrawal.

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* The exact vulnerability of helicopters has to date not been established. There have been cases in Korea where the rotor blades have been hit by small arms fire with no appreciable effect on the flight of the aircraft. Due to the lack of any kind of armor protection and the many intricate parts which are essential to stable flight, it is felt that the helicopter cannot sustain many hits from small arms without being knocked down.

** This system has been tested at The Artillery School and has proved successful up to a range of about 15 miles from the radar set.

Publication of this article is not necessarily to be interpreted as reflecting the views of The Infantry School or The Infantry School Quarterly.

WHAT's New!

The following information provides a means of keeping up-to-date on matters of professional interest.

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Currently Under Study

Methods of increasing the Infantry regiment's fire power, tactical control and use of manpower. To achieve this, numerous proposals are undergoing test. Here they are:

1. Merger of the heavy weapons company with each battalion headquarters company and an integration of the heavy machine guns of the heavy weapons company into the three rifle companies of each battalion.

This merger would provide: Six 81-mm mortars per battalion, and forward observers for the mortars to each rifle company. Eight 105-mm recoilless rifles per battalion and eliminate the two 75-mm recoilless rifles now present. An observer-sniper squad, a maintenance section and a supply section in each battalion headquarters.

2. To give each rifle company forward observers for the 4.2-inch mortar and a three-man communications wire team. There would also be an increase in the number of battalion and regimental wire teams.

3. Reorganization of the anti-tank mine platoon of the regimental headquarters company and the transfer of the company's counter-fire platoon to the heavy weapons company.

Under the above proposals, the present strength of the Infantry regiment would be increased from 3,527 to 3,658. This gain reflects only the addition of two men to the rifle squad. (Ed. Note: This has been done to accommodate the additional automatic rifle recently added to the rifle squad. See "What's New" in the April edition of THE INFANTRY SCHOOL QUARTERLY.)

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New weapons and equipment for the Infantry regiment that are still in development stages but considered promising for the future are:

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New lightweight rifle that may eventually replace the M-1 Garand rifle and with minor modifications replace all shoulder fired small arms including the BAR. The choice for the rifle has narrowed down to the T-44 and the Belgian FN. Extensive firing tests are now being conducted to determine which of the above rifles will best suit the needs of the U. S. Army.

AGSC 6-57-1

An entire new family of long-range artillery pieces, headed by a 156 mm howitzer which can traverse 360 degrees instead of the 155 mm howitzer's present 60 degrees.

•

A support vehicle that will contain a complete laundry.

•

New Engineer equipment under study includes a snow packer for northern air bases and their runways; armored bulldozers; and a new fighting light, an 18-inch spotlight for armored vehicles. Also under consideration by the engineers is a 60-foot bridge which can be launched from an armored vehicle under fire without exposing any of the crew; a steam outboard motor which eliminates the noisy "putt-putts" during night assaults; and dry gap bridging equipment.

•

New Hot-weather uniform being evaluated by the Army QMC and engineers is a bush jacket, headcloth and trousers made of lightweight cotton. Tests include three shades of the uniform, all of which are about the same weight. The bush jacket resembles a civilian sports jacket and is intended to protect a soldier from contact with heated rocks and sand, as well as the direct rays of the sun.

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Other QM tests include sunburn preventive creams, load carrying systems for the individual soldier, insect repellants, tent anchoring systems, V-board packaging, and field showers.

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Carbine Transition Firing. A new transition firing course for the carbine is now under construction. It is being set up in line with recent changes in the standard rifle marksmanship courses revised for the M1, the automatic rifle and the carbine.

The course consists of eight targets for slow single shot firing, and six targets for automatic setting, and could be superimposed on the revised M1 transition course.

•

Adjustable Rifle Stock. It is possible that every rifleman will have what amounts to a made-to-order rifle stock if a recent idea is favorably considered. A standard stock has been suggested that will be one inch shorter than the one currently used, but the firer will be able to screw onto the butt plate either one or two one-inch "extenders" so that there will be in effect three different sizes for the rifle stock. The proponents of this recommendation feel that the proposed adjustable stock will result in more effective use of the rifle.

Snake Bite Kit for individual use. Under study is a new kit which would have a plastic container and consist of a direction sheet; a tourniquet with metal buckle; an iodine swab; a stylet with ¼ inch cutting edge; band aids; and a suction pump with metallic parts.

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In Production

BAT (Battalion Antitank) Recoilless Rifle which is expected to outperform present antitank weapons is now in production and expected to be in the hands of troops very shortly.

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Training Literature
Manuals

Revised. FM 22-5, "*Drill and Ceremonies*," has been forwarded to the TAG for approval and publication. A complete revision of the old manual, the new publication contains a section devoted to instructors, and a section which gives concise drill definitions. It contains better figures and illustrations throughout.

•

FM 22-100, "*Command and Leadership for the Small-Unit Leader*" and FM 23-65, Change 5, "*Browning Machine Gun, Cal .50, HB, M2*" mentioned in the July QUARTERLY are now being distributed.

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Distributed
Training Circulars

Training Circular No. 2, "*Command Responsibilities, The Individual Soldier's Load*," mentioned in the April QUARTERLY has been distributed.

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The following publications mentioned in the July QUARTERLY have also been distributed: TC No. 6, "*Replacement Units*"; *and* TC No. 14, "*Combat Formations*" (New Squad and Platoon combat formations to include the positions of the two automatic rifles. For details see page 72.)

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Distributed
Manual

Revised. FM 23-25, "*Bayonet*," has been printed and is being distributed. It is a complete revision of the old manual. New illustrations of each movement clearly show exactly how they are executed.

Change to Manual

Change 4 to FM 23-90, "*81-mm Mortar, M1*" is currently being printed. The change covers the latest thoughts on the use of smoke as a screening agent by the 81-mm mortar platoon.

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Organization Information

The following changes have been made within the last six months in the T/O&E's of units in the Infantry regiment:

a. Filler personnel have been deleted from all units.

b. Company orderlies have been redesignated company scouts, except in Hq & Hq Co, Inf Regt; Hq & Hq Co, Inf Bn; Svc Co, Inf Regt.

c. Appropriate number of cooks and second cooks has been reduced in conjunction with the elimination of filler personnel in units affected.

d. All bayonets and bayonet knives have been deleted from Medical Company T/O&E.

e. Appropriate number of protective masks, rifles, and bayonets has been reduced in conjunction with elimination of filler personnel within units affected.

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New!

Book Department Catalogue. The 1953-54 edition of The Infantry School's Book Department catalogue of instructional material is now available. This catalogue lists not only lesson plans, conferences and map problems, but includes a list of the latest field manuals, special texts, pamphlets varying from booklets (of a military nature) to one-page statistical compilations, maps and military books. As a convenience and service to Infantrymen the Book Department also offers school and training supplies. To obtain the 1953-54 catalogue, write The Book Department, Fort Benning, Georgia.

A Real Convincer

Major Ellis Lea, Inf.

JOHN TERRY

✔ Green shooters can qualify — Here's how . . .

"WHAT? You mean 99 per cent of the battalion qualified?"

"Yes! Ninety-nine per cent."

"That's hard to believe. You mean this training battalion qualified that number of men. Why, it's incredible. I don't like to doubt your word but — well, you've heard of firing M1 pencils?"

"Yes, sir, but there were none fired on this range."

This conversation took place in 1943 at Camp Fannin, Texas. Since the score was so unusually high, an immediate investigation took place to see what methods were used to qualify so many "green" soldiers. Once the investigators discovered that we had used among other things a "Trigger Squeeze Convincer,"* they gave us a clean bill of health.

Though it was highly successful, the device wasn't used again until 1952, when it was tried at Fort Ord. At this time, it was employed by the Rifle Committee of the 6th Infantry Division. Each instruction team was equipped with three "convincers" which they found could be used not only with rifles, but with equal effect on pistols and carbines.

What does this "gimmick" do? It is, as shown by Figures 2 and 3, a remote control device which gives a perfect trigger squeeze. It demonstrates what a man can do when he learns to correctly squeeze the trigger. To do this, the shooter gets into a proper position, takes correct aim, BUT DOES NOT PUT HIS FINGER ON THE TRIGGER. The coach, who hides the remote control mechanism from the firer, then presses the button (Figure 3). The result is that the firer can't jerk the trigger because he actually has no knowledge of when the weapon will fire. After a few such practice shots, he realizes that his poor trigger squeeze, and not the rifle, is at fault. This soon convinces the man that he can expect to get a good score once he learns proper trigger squeeze or applies what he has been taught.

The device is most effective when used with slow fire. This provides the man an opportunity to better absorb the lesson being demonstrated. When used with rapid fire, its value as a training aid diminishes.

It is no cure-all, but it does give both mechanical and psychological help to the potential "bolo." It does not take the place of good marks-

* Major Lea is the inventor of the Lea Trigger Squeeze Convincer.

manship instruction or careful coaching, but it does show a man what scores he can expect with a perfect trigger squeeze and it will instill confidence.

How do you go about constructing a "convincer"? Figure 3 gives a detailed blueprint. Any ordnance shop can use this plan to build them for you. With the exception of the choke wire (long wire connecting the device proper and the "remote control" handled by the coach), everything can be made of scrap material. The shield (see Figure 1) is needed since the "convincer" is normally mounted on the left side of the rifle to prevent the firer from knowing when the weapon will be fired. It shields the operation from his view.

Here's how it's used. Experience indicates that the "convincer" is most effective when attached to an M1 trigger group. This group is then substituted for the one on the rifle of the soldier being instructed. If the aid is used with the pistol or carbine, this is not done. With either of the latter two weapons, it is attached to the trigger guard on the left side of the piece.

And now — what about the soldier with a low score? How do we help him?

The man (or men) whose score is so low that qualification cannot be anticipated is taken from his regular station to spare targets on the flanks of the range. We then explain to the soldier that his scores indicate that he's not likely to qualify.

In many cases a soldier will tell you: "My trouble is that I can't hold the rifle steady."

The instructor replies, "All men have the same difficulty. But let me prove to you that you can get a qualifying score — even though your weapon seems to be wobbling all over the target."

Use the M2 sighting device to make certain the man's difficulties do not rise from an improper sight picture. Determine the root of the problem. Check the zero of the man's rifle. Have someone else fire it. This is necessary. If a man's rifle is not zeroed or is inaccurate, he will never get a decent score. Satisfied that nothing "organic" is wrong with the weapon, we have him demonstrate trigger squeeze. In almost all cases the "near bolo" jerks the trigger.

Then we say: "Let's refire the exercise. You load and aim the rifle, and I'll fire it by remote control using this device. (Show him the convincer. Tell him how it works.) You realize that I won't know when you're aiming at the bulls-eye, but when I see you hold your breath I'll know you're ready to fire. This gadget will prove that even though aim may not be perfect, a correct trigger squeeze will produce good scores. We'll try this several times. Once you see what effect proper squeeze has on your firing, then you'll have to learn to duplicate the correct squeeze."

"OK!"

"Good! Now, I'll be watching your breathing. Don't forget — everything will be just like normal except that you must KEEP YOUR FINGER OFF THE TRIGGER."

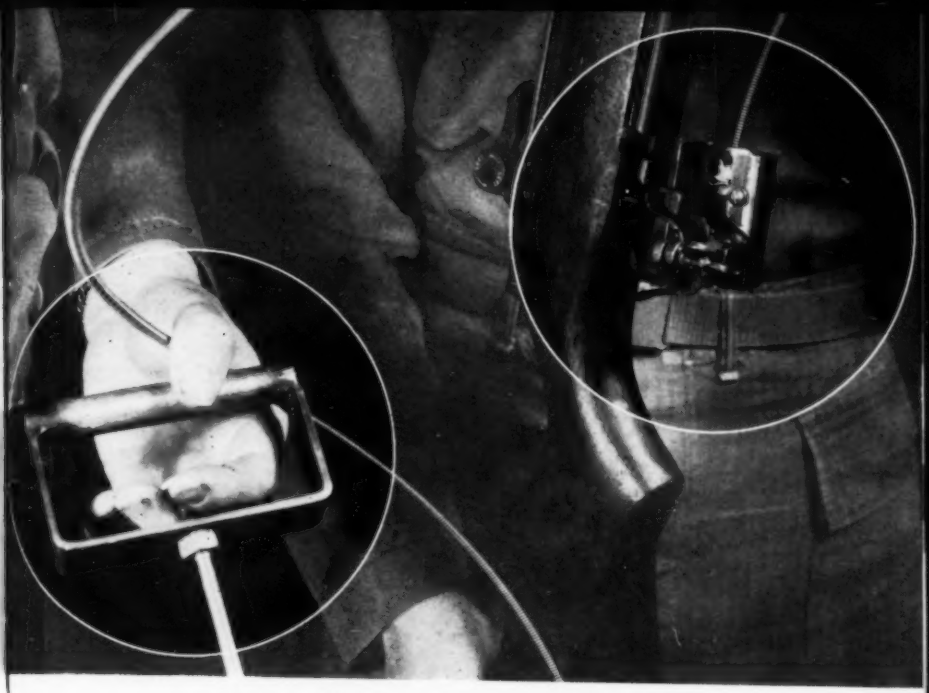


Figure 1. Side view. "Convincer" attached to M1.

Figure 2. Use in kneeling position.

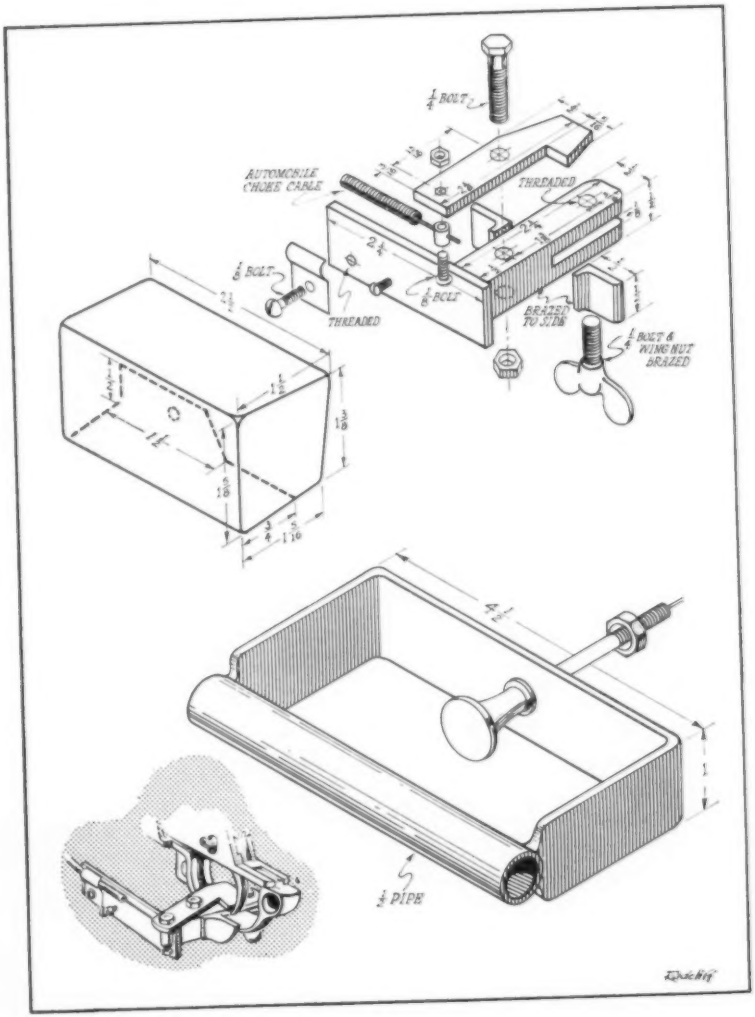


Figure 3. Blueprint.

"Yes, sir!"

"All right. Now shortly after I see that you're ready to fire, I will press this lever and fire your rifle. You won't be able to see my hand, so this will be the 'surprise shot' we've been telling you about."

Repeat this process until the man regains his confidence. Then send him back to his regular position on the firing line.

Both this system and the convincer produce some surprising results. For example: One soldier had fired 8 rounds at 200 yards standing with a total score of only 10. I took him to a spare target and talked to him in a manner similar to that indicated above, attached the "convincer" to his rifle and had him fire an additional 8 rounds (standing) at 200 yards. The score — fired with the aid of the device — was 31.

This is not the end of the story. Some time later as I was about to leave, I noticed someone following me. It was the soldier I had helped.

"Sir," he said, "would you like to see my scorebook?"

"Yes, let me look at it."

While I examined his scorebook, he said, "After I finished firing with your 'convincer,' I went back on the line and fired 8 rounds — on my own — and got 28."

Judging by the smile on the man's face, I estimated that he considered himself worth no less than one million dollars to Uncle Sam.

The Infantry School is now having a number of "convincers" constructed. These will shortly be used in marksmanship instruction.

Now as a parting fact for those who may be skeptical. From December 1951 through October of 1952, we used both the training aids and the techniques previously outlined at Ford Ord and very carefully recorded the results. During this period only 189 out of 19,387 or less than 1%, failed to qualify. Since we anticipated the old cry, "M1 pencils," every conceivable measure was taken to eliminate any dishonest "overenthusiasm."

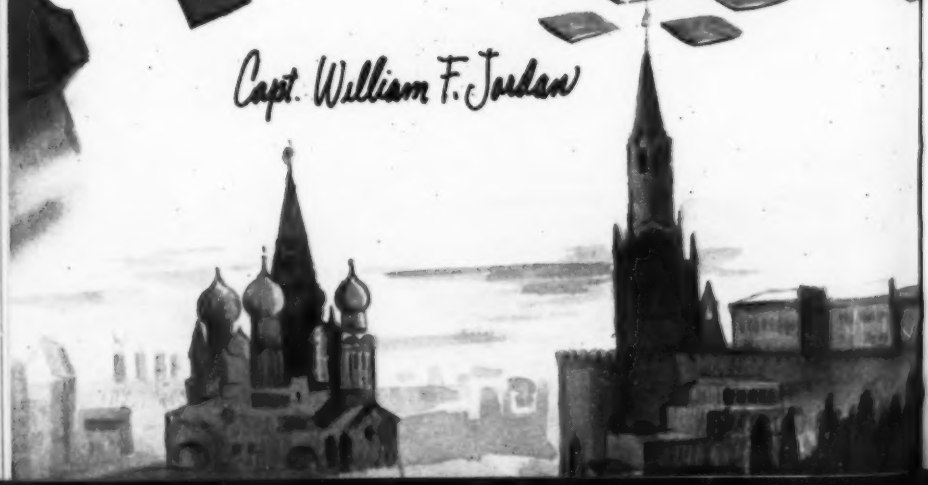
The goal: Correct the soldier's bad trigger squeeze NOW.

Every citizen should be a soldier. This was the case with the Greeks and the Romans, and must be that of every free state.

— Thomas Jefferson

"I Know the Russian Soldier!"

Capt. William F. Jordan



A Glimpse Behind the Iron Curtain . . . .

I REMEMBER WELL A conversation I had with a Russian Infantry senior lieutenant during March 1945. I had crash-landed over Poland and lived for three weeks with the Soviet Army at Poltava, Russia. We were talking about lend-lease. The lieutenant was impressed with the P-39 Airacobra we were supplying to his air forces and said it was wonderful the way we helped each other with combat equipment.

"For instance," he said, "you supply us with planes, and we give you the benefit of our jeep."

He had seen our jeeps on the American air field at Poltava and had one of his own with Russian markings, supplied by lend-lease. Since his jeep had been assembled at Moscow, or at least delivered from Moscow, the lieutenant was firmly convinced that it was of Russian design and manufacture, even though the Ford trademark and "Detroit U. S. A." were firmly and clearly pressed on the metal of the rear of the jeep.

This was my first contact with the Soviet Infantryman. The lieutenant's fantastic ability to overlook the obvious made me wonder what kind of training this man and other Russian soldiers actually had. Since then I have gathered some material about the Soviet Infantryman, his background and training.

Much has already been written on the subject. The Russian soldier has been pictured both as a stupid automaton and as a kind of superman. He is neither. But he is tough, patriotic, unpredictable, and narrowminded, capable of fanaticism as well as intelligence, cowardice as well as bravery. In short, he is a human being. But he is a human being who has been subjected to a specialized kind of training and political indoctrination.

Let's look at the background of the Soviet Infantryman. He is more than likely to be a peasant. To be sure, not all Russian soldiers come from the rural areas, but a high percentage of the city dwellers are taken into the more or less technical arms. For all intents and purposes the Soviet Infantryman has a peasant background.

For centuries his people have hardly changed their way of living. His family still lives in a primitive wooden house and sleeps all in one room, together with pigs, chickens, and other domestic animals. His shelter and most of his clothing have been passed on to him by his father and grandfather. He grows his own food. Whatever he produces over and above his own needs must be turned over to the commissar.

The peasant has few necessities. Electric lights, modern pictures,

radios, and many other things that we take for granted are still unknown to him. His world is bounded by the edge of his village. If the crop does not fail and if the commissar leaves him enough to live on, he is satisfied with his lot.

It is clear then that even before he enters the army, the Soviet soldier has learned to accept hardship and privation as the rule rather than the exception. He does not miss the so-called luxuries of the western world, because he knows nothing about them. His attitude, seasoned by years of hard work, has become one of indifference. When this indifference turn into a disregard for danger, the Soviet Infantryman becomes a formidable opponent.

He is patriotic. Not that he is fervently loyal to his Communist rulers, whom he often has reason to mistrust; but he loves his land. It is his most precious possession, and he has proved in the past that he is quite willing to die for it. While he may not always be expected to defend communism as such, he will fight staunchly for his country.

He has superb physical endurance. The Russian's never-ending fight with nature and its forces has made him tough. The stamina of the average Russian soldier is generally excellent. Here is an example of the toughness of the Soviet Infantryman displayed in World War II:

During January 1942, a Soviet Army rifle battalion attacked the town of Medin. The temperature was minus 43 degrees Fahrenheit. After sustaining heavy casualties, the attack came to a standstill on a snowfield. The survivors lay motionless in the snow for 10 hours, without any special protection from the cold, and then renewed the attack at dusk with shouts of "Hurrah."

He is unpredictable. His personal characteristics, like those of his vast country, are strange and contradicting. He will repulse an attack of a numerically superior enemy on one day, and turn and run on the next. On one occasion he will lose his nerve with the first artillery shellburst, and on another hold out to the last man. Swayed by moods often incomprehensible to us, he is a man who acts by instinct.

The Soviet Infantryman has a disregard for human life. He is contemptuous of death. He will climb with cold-blooded indifference over the bodies of hundreds of fallen comrades to take up the attack on the same spot. Then he will work all day burying his dead comrades. Severe wounds do not impress him; his death he regards with resignation.

Ferocious and cruel in a group, he can be kind and friendly as an individual. These conflicting characteristics go to make up an excellent soldier and, with the right kind of leadership, a dangerous one.

When the young Russian is drafted into the army, he is very likely to be leaving his village and surrounding area for the first time in his life. He goes to a Red Army training center. For the first time he sees paved streets, buildings of more than one or two stories, automobiles, electric lights, radios,

streetcars. Everything seems strange and beautiful to him.

His barracks seem enormous. He is issued a beautiful new uniform, underwear, his own bed, and even a razor, with which he has to shave daily. He is excited and thrilled. He begins to think that this is really a wonderful country to live in.

At this point, the political commissar of the company takes over. The commissar points out to the recruit that all of the beautiful buildings and streets and other wonderful things he has just seen for the first time were created by the Communist government for the farmer and worker. The commissar explains how much better off he is under communism than he would be under any other kind of government. The recruit is impressed, because he is now living better than he ever has before.

During this orientation and indoctrination, the political commissar is on the lookout for men of intelligence. Before long he selects the smartest recruits for further political indoctrination. These men will be trained to be officers, noncommissioned officers, or political commissars. They are taken to movies, stage-shows, and other activities that show the so-called glories of the Communist way of life. A love and admiration of the State is instilled into them.

The Soviet Infantryman's military basic training is similar to ours. He is given more or less the same basic subjects; he trains for an eight-hour day that usually stretches from 10 to 16 hours before it's over; he eats three meals a day, which although not as appetizing as ours, are better than what he received at home. His training schedule includes a number of hours on the study of communism, the Soviet Constitution, and history of the Soviet Army.

From basic he goes to advanced training, where he begins to develop into a tough fighting machine. The training is hard in every respect. Live ammunition is used extensively. The policy of the Soviet Army is that extreme battle realism, even at the expense of safety, will reduce combat casualties.

The Soviet leaders make the most of Ivan's natural physical prowess. Hand-to-hand combat, swimming, gymnastics, and road marches play an important part in the training schedule. The final physical training test is believed to be a 3-mile run in less than half an hour.

Having lived on the land since birth, the Soviet Infantryman is good at blending into it. His training stresses the importance of camouflage. Since he has little mechanical ability, his weapons are simple and rugged, so that he will have as little trouble as possible in mastering them.

Let's look at Ivan's clothing and equipment. In combat he carries nothing that he will not need. His combat equipment weight is 55 pounds in summer and 63 pounds in winter. The summer uniform with helmet and field cap weighs 11.87 pounds; the M44 carbine, 9.08 pounds. On his uniform belt he carries 70 rounds of ammunition, two grenades, a canteen, first aid packet, entrenching tool, rations pouch, mess kit, and cup. This adds up to 14.81 pounds. The overcoat,

Russian snipers on way to forward positions. 1943.

Soldiers reading mail. Note semiautomatic rifle on right. 1943.

Russian troops, stationed in Korea during occupation (1945-48), move north along road from Song-Do.

Overhead the huge red banner welcomes Russian troops entering the town of Ichterhausen, Germany. However no welcoming crowds line the street. 5 July 1945.

weighing 7 pounds, is slung in a horseshoe roll over his shoulder; and rain cape, weighing 2.97 pounds, may or may not be added to this.

The Soviet Infantryman's rations, consisting of a chunk of bread, a can of meat, a little tea and some sugar, together with his tobacco and matches, weigh 5.27 pounds. His toilet articles and extra clothing weigh 4.15 pounds. He may not carry extra clothing, and the ration may consist only of a piece of bread.

In winter a crude but practical rucksack is a normal part of the soldier's equipment. A loose-fitting cape is issued for purposes of camouflage, and the rain cape is turned in. For foot-gear he receives fur felt boots in dry, subzero areas. The winter uniform weighs 19.16 pounds, placing upon the soldier a total weight of about 63 pounds. He not only receives a much smaller issue of clothing than his US counterpart, but he also gets no blanket.

In training he normally wears a full field pack, which sometimes weighs as much as 70 pounds. He is also issued a gas mask. It can be seen that the Soviet Infantryman's superb physical endurance coupled with his simple and practical combat load gives him great mobility.

The Soviet soldier is a thoroughly politically indoctrinated, well-trained, and well-disciplined fighting man. But he is unimaginative and lacks initiative. His peasant background makes him slow to catch on to technical and mechanical devices. Knowing that, his leaders have instead taken pains to exploit his natural abilities. They have capitalized on his stamina, his love for his land, and have instilled a rigid discipline into his training.

It is important that we neither underestimate the Soviet Infantryman nor build him up as some kind of monster. The Soviet Infantryman has weaknesses, but above all, he is a well-trained, dangerous soldier.

Much of the material in the above article pertaining to the Russian Infantryman and his background was obtained by the author in conversations with Russian soldiers from the rank of private to captain. These conversations were with Russian Air Force and Ground Force soldiers at Kutno, Poland, and Poltava, Russia, in the spring of 1945.

The author's views are substantiated by other material published on this topic. — Editor.

LT MORRIS P. WOLF

Test Your Military Knowledge

ANSWER THE FOLLOWING questions and determine whether you are a bolo, recruit, marksman, sharpshooter or expert.

Possible Score	100 points
Expert	90-100
Sharpshooter	70-89
Marksman	50-69
Recruit	30-49
Bolo	0-29

QUESTIONS:

1. On a military map what does the color **yellow** indicate?

(5 points)

2. What is an **attack position?**

(10 points)

3. What is the purpose of organizing patrols in **specific formations?**

(10 points)

4. What is an **FPL?**

(10 points)

5. Your unit has captured six people: A captain, two sergeants, and three other men who surrender voluntarily. How should these prisoners be segregated?

(10 points)

6. Prisoner of war collecting points are established at echelon below Army to insure the proper handling of the prisoners so that they can be properly interrogated and still not endanger our own security. What are the recommended characteristics of such places?

(10 points)

7. The white phosphorous (chemical) mortar round is painted:

a. Olive drab, marked with yellow.

b. Gray, with one band of yellow.

c. Blue, marked in white.

d. Yellow, with one band in gray.

(10 points)

8. What is a CPX? How is it used?

(10 points)

9. What are the three types of retrograde movements?

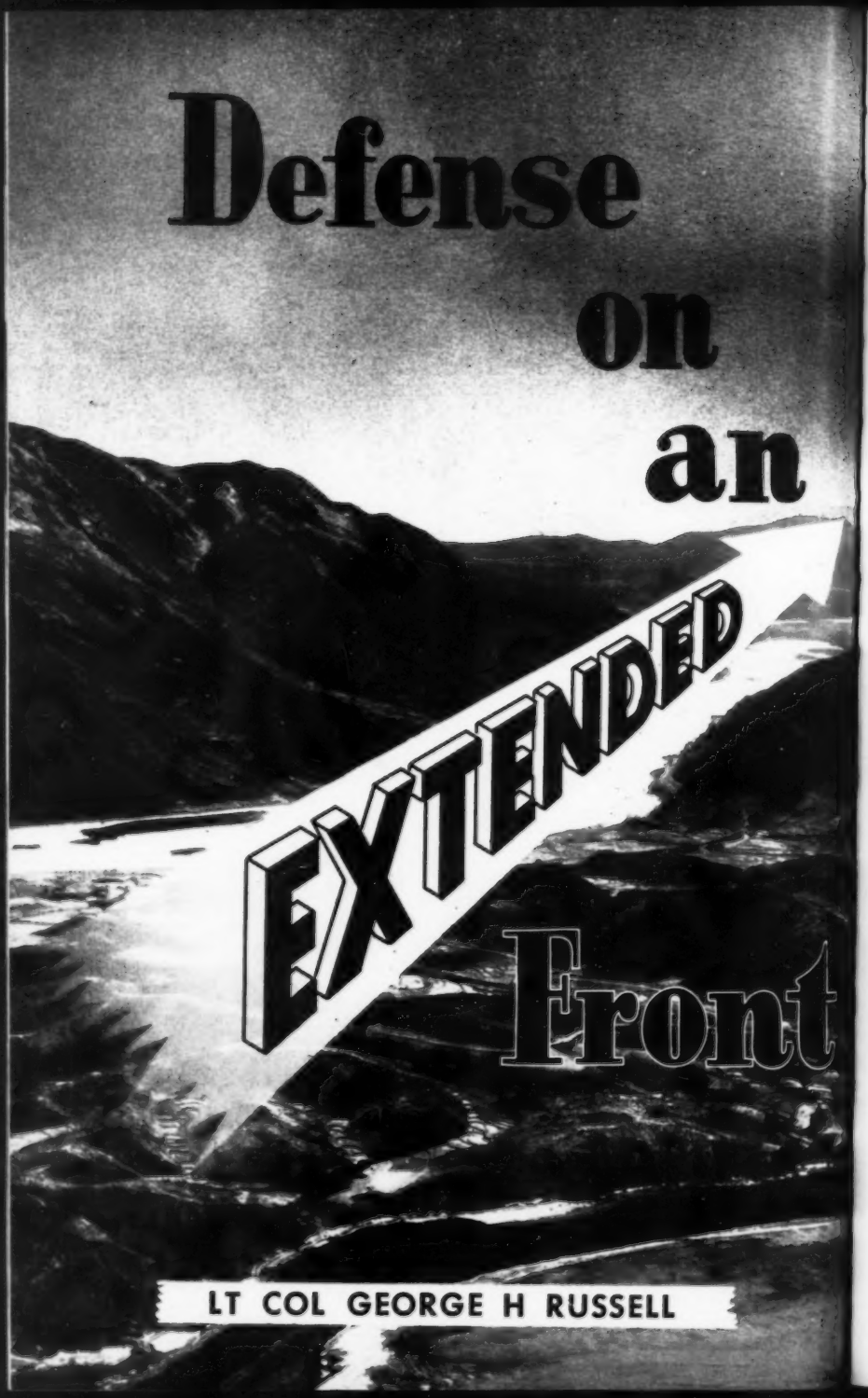
(15 points)

10. The bursting radius of fragmentation grenade is:

a. 10 yards (30 feet).
b. 20 yards (60 feet).
c. 30 yards (90 feet).
d. 45 yards (135 feet).

(10 points)

Turn to page 110 and see how you rate. Look for another QUARTERLY Quiz in the next issue.


Defense
on
an
EXTENDED
Front
LT COL GEORGE H RUSSELL

A lesson in ingenuity.

IN AUGUST AND SEPTEMBER of 1950 the 23rd Infantry Regiment had to defend a frontage of 16,000 yards on the Taegu-Pusan perimeter (Figure 1). As S3 of the 1st Battalion, I had a good opportunity to learn first hand the techniques of defense of extended frontages. We made mistakes, but were finally successful in beating off the powerful North Korean attack and helping to set the stage for our forces' subsequent drive to the Yalu River.

The so-called "normal" conditions for the defense are often the exception rather than the rule. The 4800 yard maximum frontage for a regiment would under some circumstances be more accurately described as "desirable." It is not at all unusual for a regiment to be required to defend a sector more than 5000 yards wide. This is especially true during the early days of a war — such as the one in Korea.

In a study made at the Command and General Staff College in 1951, it was shown that the minimum frontage a division can expect early in a war will be about 25,000 yards. In such a situation the division must hold out large reserves, so a front line regiment will have proportionately an even greater frontage.

It need hardly be said that the defense of an extended frontage has problems all of its own. Perhaps the English poet, Rudyard Kipling, was thinking about this when he wrote of the "thin red line of 'eroes." But heroism is not enough. Unless a commander has prepared himself in the techniques of this type of defense, he is likely to be stumped by its special problems.

He must know the capabilities and particular methods of the enemy. Against the communists, for example, the defense setup must be able to cope with the mass type attack, the guerrilla, and the civilian-clothed infiltrator.

It is well to say at this point that the general principles of defense apply equally well to the defense of greatly extended frontages. They must, however, be modified for this type of operation.

The commander cannot possibly hope to defend his entire sector in strength. He must choose his key terrain carefully and defend it with all the strength he can muster. These terrain features should be ones that control the vital avenues of approach and which are so placed that the enemy is forced to attack them rather than by-pass.

The defense would consist of more or less isolated strongpoints

holding the key terrain, which are strong enough to hold out against heavy enemy attacks until counter-attacks can get up to them. A reinforced rifle company is the smallest unit that should be considered to hold a strongpoint on the main battle position, but a reinforced rifle battalion would be a more suitable unit.

These strongpoints will be used as bases for heavily-supported combat patrols and for forward observers for artillery, heavy mortars, guided missiles and tactical air forces. A strongpoint will usually be organized as a modified perimeter defense.

Mutual support between strongpoints will often be limited to long range fires. When observation between strongpoints is not possible, forward observers in one strongpoint may direct mortar and artillery fires coming from other strongpoints. Within strongpoints there should be mutual support between units. Small outposts and patrols with radios and some means of transportation (perhaps helicopters) will operate between strongpoints. Their job is to report enemy movement and direct fires.

The wider the front the greater must be the depth of the position. Position in depth on key terrain should be prepared for occupation by reserves or by units ordered to withdraw. Units smaller than the reinforced battalion will not usually hold out a reserve. Reserve elements should have tanks and transportation for rapid movements to blocking positions or to assist strongpoints under attack. Security echelons add to the depth of the defense and may be required to fight delaying actions.

Because of the opportunity for enemy units to infiltrate or break through between strongpoints, it is imperative that command posts, support units and logistical installations be prepared for all around defense at all times. Wherever possible, positions for such elements should be integrated to form defense areas capable of holding out against attack for considerable periods. Close support artillery may have to be grouped into artillery strongpoints. In addition to securing themselves, these strongpoints will give added depth to the defense.

All weapons provided by organizational tables of equipment but not provided with crews by the tables of organization must be utilized. Each of these rear units must have a secondary organization for employment as Infantry. Training must be given in this secondary role. The threat of partisans or guerrillas makes this absolutely necessary.

The coordinated fire plan for a strongpoint will be generally the same as for a normal perimeter defense. It may be necessary to include artillery or heavy mortar units within front line strongpoints to provide long range fires to the front and to provide support for adjacent strongpoints. Artillery and heavy mortars may be used as "roving" units to add flexibility to supporting fire.

Each defensive area, including rear installations, must have anti-tank weapons. Wherever possible these should include tanks. Care-

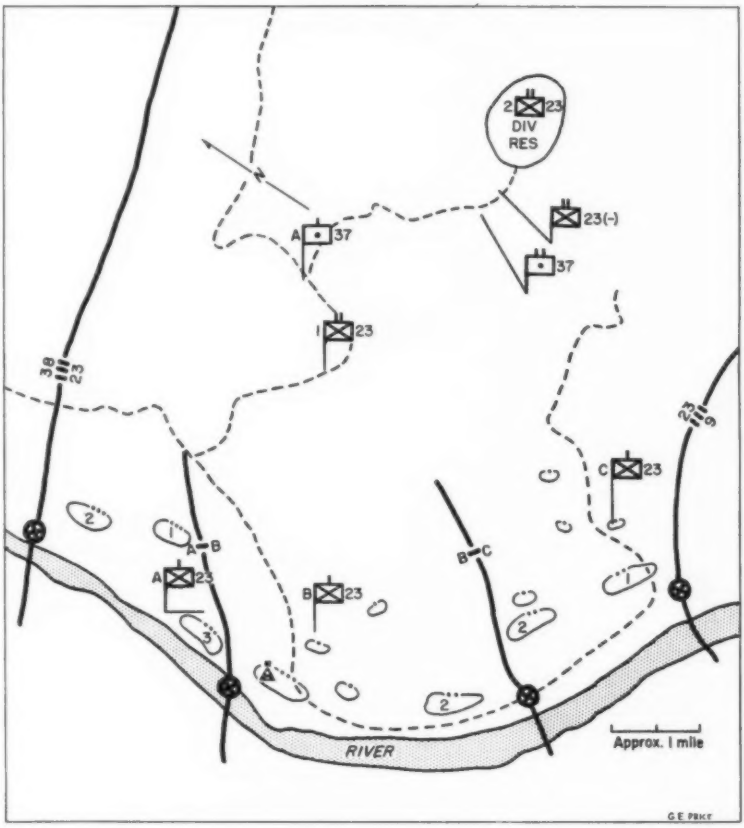


Figure 1. Extended Front. The sketch above shows the area held by the 23d Infantry on the Taegu-Pusan perimeter (Korea 29 August 1950). The 2d Battalion was, as indicated, in Division Reserve. The 3d Battalion, not shown, was attached to the 1st Cavalry. This, of course, left the frontage shown to be held by the 1st Battalion.

ful use of natural and artificial obstacles will channelize enemy armor so that it may be destroyed by tactical air forces or armored reserves.

Flexibility in the defense of extended frontages is even more important than in normal defense and is more difficult to achieve. Reserves should be provided rapid

transportation. Maximum use of mobile security elements and regimental aircraft will provide early warning and permit movement of forces to meet attacks. Supplementary positions for heavy mortars, 105mm recoilless rifles and tanks will add to the regiment's defensive capabilities.

Communication must be good to assure flexibility — wire may be laid by regimental aircraft. Tanks in each strongpoint provide radio contact. Radio relay will be necessary in many instances. Tank Infantry patrols with artillery and heavy mortar forward observers and a tactical air controller, working out of the strongpoints, can keep the enemy under constant observation and fire and will add to the flexibility of the defense.

Planning the regimental defense and confirming it by personal reconnaissance will be made easier by color contouring maps of the area and by use of the regimental helicopter to check the terrain. This will help greatly in avoiding faulty terrain evaluation. Maximum use must be made of the reconnaissance of the regimental staff and subordinate commanders.

Defense of greatly extended frontages is a problem we will be forced to solve in any future conflict. It will place tremendous problems before the regimental commander and his staff. It will require the use of every available facility. Ingenuity and improvisation will be necessary at all levels. Above all, we must realize that our principles are sound. By intelligent interpretation and forceful application of these principles we can gain success.

Publication of this article is not necessarily to be interpreted as reflecting the thought of The Infantry School or THE INFANTRY SCHOOL QUARTERLY.

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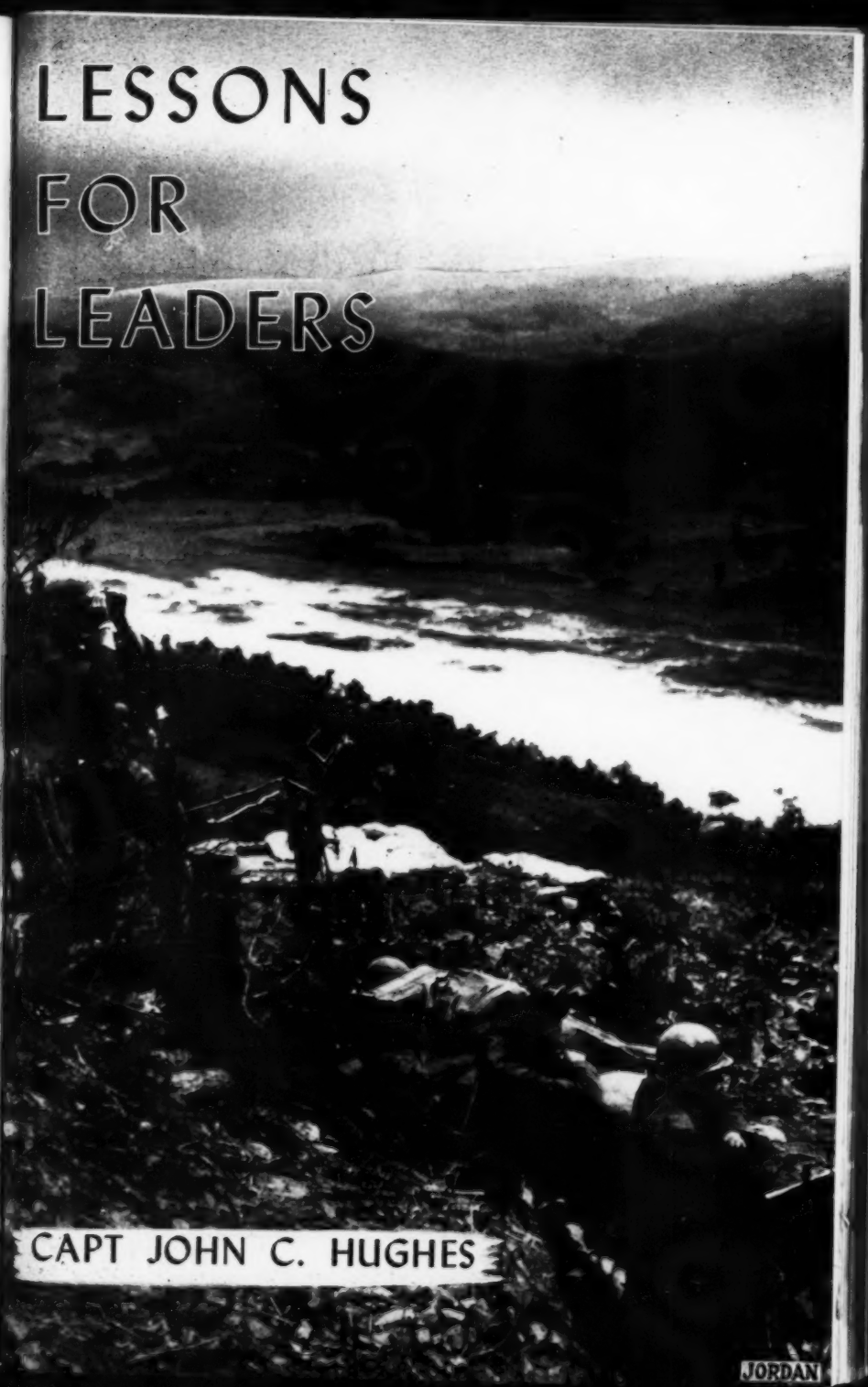
LESSONS FOR LEADERS



CAPT JOHN C. HUGHES

JORDAN

✔ Some practical suggestions from a veteran combat commander . . .

THERE I WAS, cut off, with only three rounds of . . . " You are listening to the familiar refrain of the combat story, hair-raising and leaning heavily on imagination. You need hear only a few words to recognize it. Best to buy the man a beer and let him roll on. He's indulging in a harmless pleasure, just so long as you don't take him too seriously.

But the combat story is often taken very seriously. The young Infantry leader who has not yet seen action wants to learn everything he can. Eagerly he stores up every bit of information he can get his hands on.

He is being guided by the right instinct. Certainly he should learn as much as possible from the experience of others. But Infantry combat is a cold and calculating business. What he needs are some "bread and butter" ideas about combat, so that he does not have to pay the price of learning with his own suffering and hardships or those of his men.

That is the purpose of this article — not to tell combat stories but to give some practical help to the inexperienced Infantryman. The combat veteran has, of course, already learned a lot from his own experience, but I hope he will find an interest in comparing his ideas with mine. So here goes.

Don't Be Fooled by the enemy. He'll try every trick he knows to make you use up your ammunition, waste your fire power, and disclose your position prematurely. When our troops and troop leaders are inexperienced, he may be successful.

Here is one trick to watch for. A lone enemy soldier may place himself in a deep hole out forward of your area at night, aim his weapon at the sky and fire off a few rounds, causing you and your men to fire blindly at him. The enemy soldier has done his job: he has made you expend your ammunition needlessly and give away your position.

Or the enemy will strike you on a wide front with lightly scattered forces, giving the impression of a heavy attack. He is really saving his main push for the time that you have used up your ammunition and disclosed your position in detail. To counter these enemy tricks you need a positive method of target evaluation and fire control. You should also use your supporting indirect fire weapons to search the

area from which you first receive enemy fire.

Another trick that can prove disastrous to you is the old high-low machine gun employment. The enemy will set a somewhat exposed machine gun on high ground directly above another machine gun located on low ground with an excellent field of fire. As you approach the enemy, he will fire the higher gun, giving away his position. But he is only setting the bait. The low gun will remain quiet and perfectly hidden. As you maneuver toward the high exposed gun, the enemy will be waiting for you to move into the low gun's field of fire. As soon as you present a lucrative target for the low gun, the enemy will open fire. This system also can be worked with adjacent guns.

Remember this: Before you go after that first gun, check the approach you intend to use thoroughly on your map and, by observation, look carefully for a possible location of a second gun. Always alert your men to the possibility of surprise fire from an undisclosed machine gun. Also remember that you can turn the tables. You can pull any of these tricks on the enemy.

Wide Frontages demand special techniques. When defending on a wide front, you may have to use contact patrols to cover gaps between units. But don't depend on these contact patrols too heavily and neglect other precautions.

Let's suppose that one of your patrols encounters an enemy patrol. Unless every member of the enemy patrol is killed or captured, your patrol will be reported, and the enemy will realize the existence of a gap in your lines. You may then expect a heavy attack.

Contact patrols alone are not sufficient protection. You can't possibly redispose your unit every time a contact patrol gets into a skirmish. Warning devices and man-made obstacles should be increased from day to day as long as your unit remains in the same area. And don't forget the value of your fire support plan in covering the gaps between units.

Artillery Smoke and White Phosphorous Rounds can be used to indicate the end of a concentration and to give the signal to start an assault. All you have to do is request the artillery forward observer to make certain the last two rounds of the preparatory fire of the artillery on the objective are smoke or white phosphorus. Then be sure your troops know that this smoke will be their signal to start the assault. This method may not always be used, particularly if it has been used before in the same area, as the enemy is quick to pick up our signal methods.

Now a word about registering artillery. You can expect the first rounds from a cold gun to land 50 or 75 yards short of where they will land after the guns have become warm from firing. The same difference will be noted when the guns are registered in the early morning hours and are not fired again until the heat of the day. The same concentration will land much closer when fired on a cool, damp day or

night than it would when fired on a warm, dry day or night. These variations of range must always be taken into consideration when registering artillery fire.

Tank Fire Can Help You close the gap between the time your assault begins and the time your supporting fires must be shifted. Before the assault, have your attached tanks fire HE. Then, when the assault begins, have them change to AP, so they can safely continue to support the Infantry with fire.

Tanks can help solve your ammunition resupply problem. See that a few boxes of ammunition are strapped on the outside of the tanks in the assault. The ammo may then be dropped on the objective at the time of your reorganization, or it can be reached by your men when needed. Tanks also can be used to break a trail for the Infantry through jungle or heavy growth.

The Buddy System has many uses both in training and combat. When your unit is required to wade across a stream or river, insist that each man cross arm-in-arm with a buddy. This will prevent loss of life and equipment should a man stumble or fall.

In water crossings it is a good idea for the lead element to carry rope or communication wire and to stretch it from the near bank to the far bank for the support of the men who follow. This is a good safety measure, even if your men are moderately good swimmers.

The buddy system can be used by the lead elements of your company or by a patrol. If the unit receives fire from ambush, the odd-numbered men immediately fire a full clip or magazine into the area from which the fire seems to be coming. Meanwhile, the even-numbered men take cover and observe the effect of their buddies' fire. As soon as the odd-numbers have fired a clip, they drop down or move to better cover, while their even-numbered buddies open fire. This method helps small units build accurate fire power and creates a feeling of security among your men.

The buddy system can be applied on a unit as well as an individual basis. Whenever one portion of your unit is moving forward, have another portion cover the first by observation and fire (when necessary). The forward elements will feel secure and will tend to move forward more aggressively.

Wire Communication can be used in the attack as well as the defense. Our new light signal equipment can be installed rapidly in the attack area, assembly area, and during the reorganization. The RL-39, WD-1 wire, and sound-power phones can work wonders for you. Another relatively new signal device is the wire dispenser MX-306. This donut-shaped item contains about 800 yards of light wire. The advantage of this equipment is that you can talk over the wire while it is being laid.

If you are a company commander, you will have the problem of protecting your signal equipment when it's not in use. You can make compartments out of scrap lumber (old ration boxes will do) in your headquarters jeep trailer to store

this equipment. The small amount of work involved will pay off.

Before your platoons reach the attack positions, have the communication chief issue them their sound-power phones. The light wire can stay with the CP group. When the company has reorganized on the objective and you decide to put in a company wire net, give the commo chief the signal, and he can see that the wire is installed. Platoon messengers and headquarters personnel can be used for the job.

There are a number of valuable uses for an extra radio placed in the rear echelon of the company. Using a simple code, you can call for ammunition, food, and water to be brought forward. You also can use this radio to direct your vehicles to the company CP or to a guide who will bring them in. In addition to providing a radio for the rear echelon, you should also furnish them with a map or sketch, just as you would a platoon leader.

It is a good idea to have your communication chief set up a system of clicks (made by pressing the transmit switch) to be used to acknowledge calls when the proximity of the enemy makes it too dangerous to talk. Here's another field expedient: If you break the antenna of an SCR 300, you can place your finger in the receptacle and use your body as an antenna. This is not an approved practice, but could be used as a last resort should an emergency demand it.

Air-panel Sets should be carried by patrols and any other elements of your company away from the main body on a separate mission. If, for example, you are furnishing a reinforced platoon to operate a blocking position while other friendly units are attacking the enemy to drive them into your block, make sure that the blocking unit has adequate panels with them and knowledge of the panel signal. This is necessary in the event that an air strike or more intense artillery fire is called for, as the platoon will need the panel set to identify themselves to the air force or artillery spotter planes.

In Reorganization most platoons tend to set up on a straight line or on an elevation along the contour line near the military crest. This method has merit for some situations, but should be avoided as a standard practice. Organizing in straight lines does not take advantage of terrain to be defended. Fingers extending from the key terrain feature give, in most cases, greater observation and fields of fire in mountainous type terrain.

A good way of organizing a front line platoon is to use a wide W or M type deployment. Squads or half-squads will make up the segments or legs of the M or W. Individual men, placed at different elevations on the terrain, should have a direction of fire roughly perpendicular to the leg formed by their squad. In this way, depth will be gained even though the platoon front is only one rank deep. The automatic weapons can be emplaced at the points of the M or W nearest the enemy. This plan is not offered as a final all-time solution, but as one means of taking advantage of the

natural defensive strength of mountainous type terrain.

Dummy Positions are invaluable when you are operating a sustained defense. If you have time to set them up, they also can be useful in a short time defense. A well trimmed log three to six inches in diameter can be laid over the top of a mound of dirt, to resemble a tank in hull defilade. A little spade work will be needed to produce this effect. Captured enemy equipment, particularly helmets and rifles with their bolts removed, can be used to make up dummy riflemen out to your front.

A Security Sweep of your position area every morning, as soon as light conditions will permit, is highly recommended. This will prevent small enemy groups from operating in your area. Before making this sweep, you should warn higher headquarters not to visit your area until you give them the all clear. Men in your own company who are not taking part in the movement should be told to remain in their individual positions until the sweep is completed and your executive officer has declared the area clear.

Give Each Aid Man a number. Insist that your men, should they be wounded or injured, call for the medical aid man by number or name instead of using the expression "aidman" or "doc." This method is justified by the psychological effect on the other men, who hear only a number being called rather than someone calling for an "aidman." Imagine the fear and confusion that can develop in men's minds, when they hear repeated calls for "aidman, aidman."

Suggested numbers: 1st platoon, 101; 2nd platoon, 22; 3rd platoon,

33; weapons platoon, 44; and company headquarters, 55.

On Anti-guerrilla operations, it is advisable to issue a sniper rifle to the best marksman on your kitchen crew. The amount of security and controlled fire power in the trains area in no way compares with what you have in a rifle company. The trains area provides a lucrative and sometimes easy target for enemy patrols and snipers.

Here are some conclusions I have drawn from my experience in fighting guerrillas. First, they will strike you only when conditions of terrain and weather, and the position of your unit offer them every advantage. Once they have made their strike, they will disengage and withdraw rapidly.

I do not believe that guerrillas will ever engage a superior force in a deliberate or stubborn defense. They will avoid contact with a larger force that has effective security at all times. In dealing with guerrillas, rapid counterfire will pay big dividends. Maximum use should be made of small patrols and security forces that include personnel of the same national origin as the guerrillas.

When you are bothered by guerrilla activities, the best thing to do is to pattern your tactics after those of the enemy guerrillas. In other words, strike him rapidly with a light mobile force. A platoon leader in the company I commanded in Korea operated in this manner during an anti-guerrilla operation in October 1950. His platoon accounted for over 100 enemy dead and did not lose one of its own men.

Many of the ideas mentioned in this article can be made into effective unit SOP's. My aim is to provoke thought and suggestions, as well as give some practical tips to inexperienced Infantry leaders. These are a few techniques that I have found useful. I hope they will be of value to you.

The publication of this article is not necessarily to be interpreted as reflecting the thought of The Infantry School or THE INFANTRY SCHOOL QUARTERLY.

To be prepared for war is one of the most effectual means of preserving peace.

— George Washington

The New Squad Formations

CAPT DILLON SNELL

✔ Here it is . . . the latest information

RECENTLY THE ARMY added a second automatic rifle to the T/O&E of the rifle squad. Since the practical value of any new weapon depends on whether effective new tactics and methods are devised for using it, this change presents a few questions:

1. Who will carry the ARs? (There has been no increase in squad strength.)

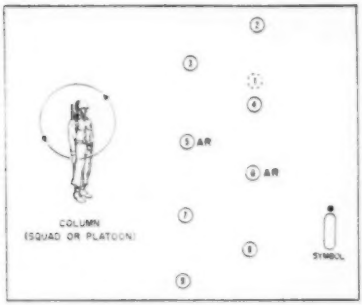
2. Will there now be two AR teams?

3. Who will carry the extra ammunition?

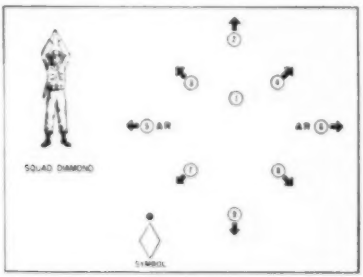
4. Where will the ARs be placed in the different squad formations?

Before the actual use of the ARs or possible new formations could be considered, thought had to be given to AR employment. It was decided that riflemen number five and six will carry the automatic rifles. They will be employed as individual AR men, not as teams. Riflemen seven and eight, now called "riflemen-ammunition bearers," will carry six magazines apiece and the AR cleaning equipment. The ammunition bearers do not normally assist the AR men, except to replace them should they become casualties. The automatic riflemen each carry 12 magazines in their belt and one in the weapon.

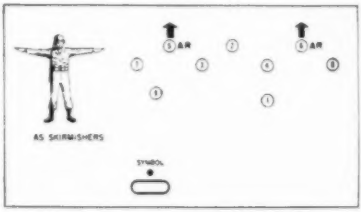
The addition of an automatic rifle to the squad, which is the basic tactical unit, will necessarily affect combat formations. These formations must be kept as simple as possible so that trainees can learn them speedily and time can be saved for training in other skills. Let's see how the change in the composition of the rifle squad will change the basic combat formations.



Squad Column. The Squad Column formation is used when control and speed are the most important governing factors. It will be used in moving through woods, fog, smoke, darkness, defiles, along trails or roads. Since the March Column formation has now been done away with, this is the squad's only column formation. It does not provide the all-around security of the Diamond formation, but riflemen numbers two and three do give a degree of forward security. Friendly fire is good to the flanks, with an automatic rifleman protecting each side of the column. To give additional security, the men may be staggered front to rear.



Squad Diamond. The Diamond formation is used when terrain and visibility do not limit the deployment of the squad. Since this formation gives good dispersion and all-around security, it is especially useful when the squad must be ready for action in any direction. The automatic rifles are placed so that a large volume of automatic fire can be placed to the front, rear or either flank. By varying the distance between individuals, the squad leader can adapt the formation to changing conditions of terrain and visibility without losing the advantage of all-around security and flexibility.



As Skirmishers. This formation, the basic assault formation for the rifle squad, provides maximum fire to the front. The two AR's are placed in line so that their fires can cover the major portion of the squad objective. The addition of a second AR has eliminated the two formations, "As Skirmishers, AR Left," and "As Skirmishers, AR Right." Both sides of the skirmish line are now covered by AR fire. In the assault the automatic rifleman uses the sling on his weapon so that he can fire, reload, and clear stoppages without assistance. The riflemen-ammunition bearers, numbers seven and eight, stay within five paces of the AR man to replace him should he become a casualty.

Unless needed for this purpose, they act as riflemen firing their own weapons.

The platoon formations have not been changed, except insofar as the squad formations are altered. The net result of these changes is not only to give the rifle squad more fire power, but to reduce the number of squad formations to three. The increased simplicity promises to speed up squad training and increase efficiency in small-unit tactics.

For further information on this subject see TC 14, "Combat Formations," 18 June 1953.

Cold Steel . . .

In the remote southwest corner of France, only a few miles from the Spanish border, lies the ancient city of Bayonne. It was here, about the year 1647, that the first bayonets were made.

The times, like today's, were troubled. And, just as today, the methods of making warfare were changing rapidly. As firearms became more efficient, the traditional lines of pikemen were disappearing, and armies were beginning to assume a modern appearance. But armies still needed a weapon for close-in fighting, chiefly to protect themselves from cavalry charges.

The bayonet took the place of the old-fashioned pike. The first models plugged into the muzzle of the musket. Although there were regiments of fusiliers armed with plug bayonets by 1671, the new weapon was not seriously tested in battle until eighteen years later.

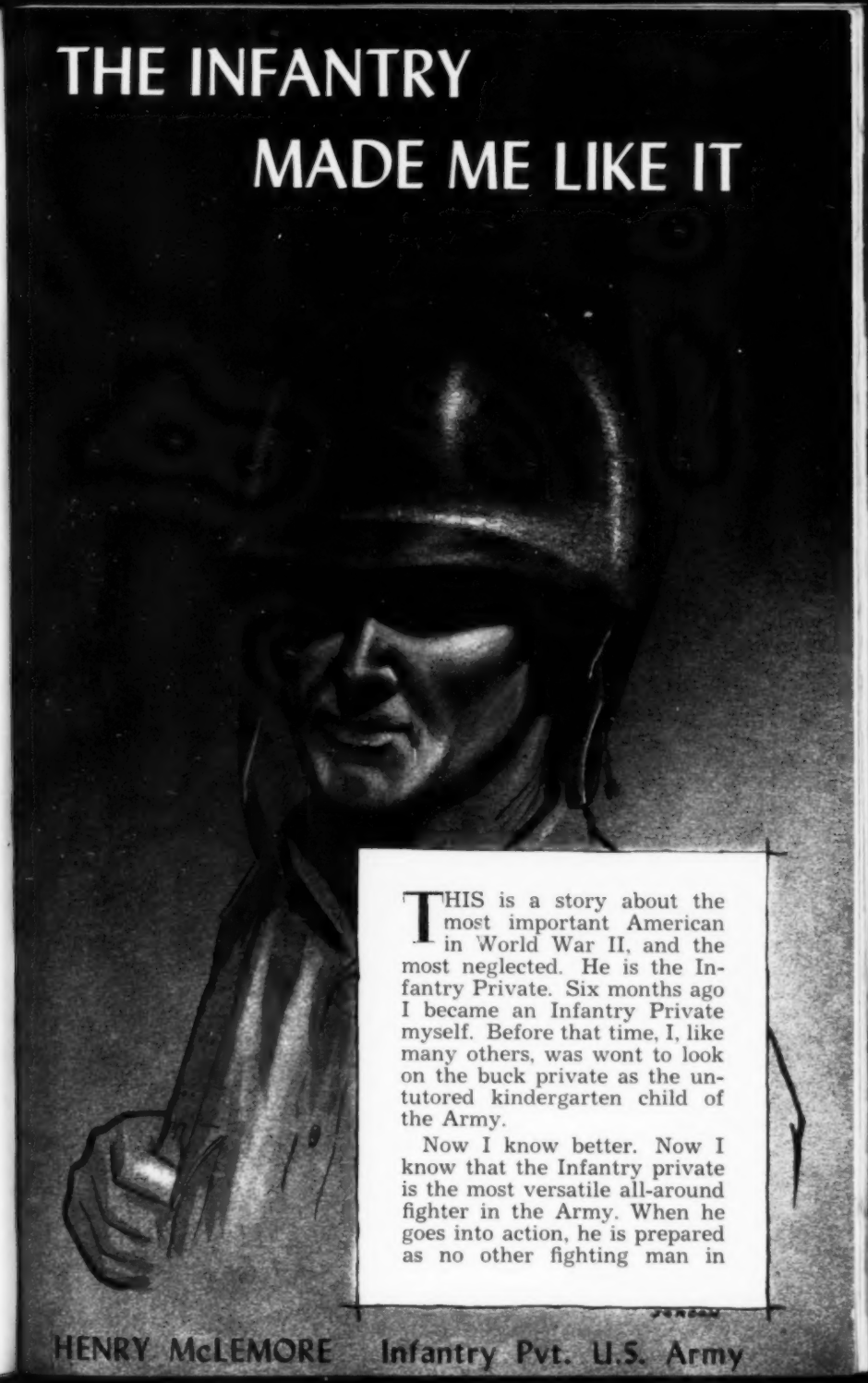
In 1689 King William III of England sent a well equipped, well disciplined army to Scotland to defeat a rebellion of the primitive Highlanders. The two armies met at the pass of Killiecrankie. When the Scotsmen charged, the English line fired two volleys, but before they had time to fix bayonets, the wild Highlanders were on them with their swords. It was a total victory for Scotland.

That was all for the plug bayonet. General Mackay, the defeated English commander at Killiecrankie, got down to work and designed a bayonet that could be fitted on a musket with a ring and spring latch. Now the bayonet would remain fixed while the weapon was fired. In 1697 it was introduced into the English army.

Armies have changed a lot since the Seventeenth Century. Cavalry and sword have disappeared along with the pike. High explosives, tanks and atomic missiles have given a new shape to warfare. But, strange to say, General Mackay's ring bayonet, with only minor changes, is still a primary weapon of today's United States Infantryman.

— Cpl Norman S. Poser

THE INFANTRY MADE ME LIKE IT



THIS is a story about the most important American in World War II, and the most neglected. He is the Infantry Private. Six months ago I became an Infantry Private myself. Before that time, I, like many others, was wont to look on the buck private as the untutored kindergarten child of the Army.

Now I know better. Now I know that the Infantry private is the most versatile all-around fighter in the Army. When he goes into action, he is prepared as no other fighting man in

HENRY McLEMORE Infantry Pvt. U.S. Army

American history ever was for effective destruction of the enemy.

I know now that no war is won until the Infantryman imposes his will on the enemy Infantryman. No land is conquered until he plants his muddy G.I. boots on it, and holds it.

Every other branch of the armed forces is in existence solely to enable Infantrymen to come to grips with the enemy. This is a fact which motivates every military council, but is almost completely ignored by the public.

The men who fly over him, the men in tanks which thunder by his side, the sailors who buck the seven seas, the men who drop from the skies in parachutes, the men who build bridges in the face of the enemy fire, and all his other comrades-in-arms sweat and die so the foot soldier can fulfill his mission. Every weapon, from the mighty cannon of the dreadnaught and the blockbuster of the super-bomber to the blackjack and trench knife of the Ranger, was conceived in his behalf.

His basic weapon is still the rifle, with the deadly bayonet still attached, but the Infantryman also is equipped with a dozen other streamlined modern weapons, all of which have the same primary purpose as the Air Forces and the Artillery — to help the basic fighter, the Infantry Rifleman to come to grips with his supreme opponent. That supreme opponent is the hostile rifleman.

Our riflemen are taught to use about ten of these streamlined auxiliary weapons. The heavier ones are manned by specialists, who in turn must know how to use many of the lighter weapons all foot soldiers employ.

By the time they have completed basic training, G.I. Joes know all the skills pictured here, and more. Yet, all the techniques they learn are almost incidental in the business of making a civilian into a fighting man.

There can be no better example of what the Army can do for a soft-living civilian than my own case. I was the pin-up boy of the Yellow Cab Company in 47 cities. Force me to walk a block, and I had to draw on my second wind. I suffered the tortures of the double damned during my first month of training.

But when I finished, I was reluctantly capable of hiking 30 miles over torturous terrain with full field equipment on my back. Furthermore, when I reached my destination, I could have walked another 30 miles or engaged in a full day's combat. After all, an Infantryman does not walk 30 miles in order to go to sleep. He marches for only one reason — to close with the enemy and try to kill him.

The process by which an Infantry soldier reaches this point has been the most fascinating experience of my life. I was like any other civilian who found himself in the Infantry. I didn't like it. I knew there would be no glamour,

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This article originally appeared in *Look* Magazine, 27 June 1944. It is reprinted by permission of *Look* Magazine.

no fancy uniforms, no movies based on my deeds, no headlines acclaiming my glorious achievements. I resented this.

I resented it more when I started doing an Infantryman's work. It seemed to me to be the hardest, dirtiest, most unglorious of all military occupations. It was mud and drilling, sweating and drilling, digging and drilling, studying and drilling. It was, to be honest, griping and bellyaching and drilling. It was just plain hell.

That is, for the first month or two.

I can't tell exactly when it happened, but some time in the third month I suddenly felt a terrific pride in being an Infantryman. At about the same time this same pride began to show itself in my squad, my platoon, my company, my battalion, my regiment. All of a sudden, every man in the outfit would have died for the blue braid on his cap and the crossed rifles on his lapel.

Don't ask me how it happened, but I think I can tell why: We had finally come to realize what we were and what our job as soldiers was. We were the anonymous Joes of the Infantry, and we were destined to be nothing more inspiring than a black line on a war map — but a line that would show where the fighting was, a line formed by us in our foxholes.

It came to us — all of us — with magnificent clarity, that there was not one living soldier on earth, regardless of rank or branch, who could stare us down.

We were men who could shoot. We were men who could be sent straight from our camp to a beachhead and hold it. We were men who knew that ours was a dirty job. We were men who had learned to glory in our ability to do that dirty job — come mud or flood, come bayonet, come hunger, come fatigue past all belief, come all the other hazards of war the average American civilian has never had to face before.

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Let's ATTACK at NIGHT!

MAJ STEPHEN E. CAVANAUGH, JR.

✔ To follow up success — gain surprise — reduce casualties.

TIME and again the night attack has proved its worth. Yet with many commanders it is about as popular as a toothache. When everything else has failed they will reluctantly attack at night, but they refuse to regard this type of operation as a desirable one with merits that are entirely lacking in a daylight attack.

Why? The major foreign armies of the world have not only used the night attack with great success, but stress it in their training. The Chinese Communists seem actually to prefer to attack at night. The Soviet Army, for example, believes that an equal amount of time must be given to both day and night tactical training. Their reason seems to be that fighting will continue after dark or when morning arrives if the situation calls for it.

It is then reasonable to ask why we have not used this successful form of attack more often in World War II or Korea. The answer, I believe, comes in two parts. First, many commanders have a feeling of uncertainty in the dark because of the difficulties of maintaining control and coordination. Secondly, not enough emphasis has been placed on night operations training.

There is certainly an element of truth in both of these beliefs. But there is none in the more general — and dangerous — idea that American troops are inherently incapable of fighting effectively at night. Many American units, which deliberately worked at perfecting this type of operation, have distinguished themselves in night engagements. During World War II, the 104th Infantry Division staged more than 100 successful night attacks. Their success can be attributed directly to the stress placed upon night training. From December 1943 until August 1944, Major General Terry Allen, Division Commander, required that more than 25 per cent of all training time be devoted to night operations. Here's the important point: Not only were the men physically and mentally capable of engaging in night attacks, but the commanders felt confident that their men could do so.

Mark Twain once remarked that everybody talks about the weather but nobody does anything about it. The night attack is different. Something can be done about it. The principles and techniques of night operations taught today in our ser-

vice schools are basically sound. What we need is a more comprehensive application of these principles through improved training methods and programs.

Let's take a look at the night attack. What are its aims? What principles must be followed to achieve success? The night attack is made in order to achieve one or more of these five general purposes:

1. To follow up a success.

2. To win key terrain for later operations.

3. To reduce casualties. For example, a night attack might be ordered over open country where a daylight attack would involve heavy losses.

4. To gain surprise.

5. To fix or attract enemy reserves.

The great capability of the night attack is surprise. Under the cover of darkness, the attacker can mass his main effort and select his attack position undetected by the enemy. Although the advantages of conducting offensive operations at night are well known to most military men, the average commander still has an aversion to the night attack. It is this aversion that must be changed.

Regardless of which of the five purposes of the night attack is sought, the principles that must be followed are generally the same. Here they are:

1. The maximum surprise possible should be obtained.

2. Planning and control are vital in all attacks, especially the night attack. All elements of the attack must be coordinated.

3. A prior reconnaissance of the terrain is essential.

4. All personnel should be sufficiently briefed to ensure accomplishment of their mission.

5. The attack should have only one objective.

6. The assault should be pressed vigorously to insure decisive results. (This is true, of course, in any attack.)

7. The mission should be limited in scope and the plan of attack simple; maneuver forward of the line of departure should be limited.

8. Individuals and units should be thoroughly trained in night operations.

In night operations, the training and efficiency of the individual soldier is of special and vital importance. Even the most carefully laid plan cannot be sure of success unless the individual is proficient in his duties and capable of acting on his own initiative should control be lost.

A historical example will demonstrate the relevance of these statements. I have chosen the following one not only because it is based on personal knowledge, but also because it points up many of the principles of the night attack. In theory the attack in question should have failed; it succeeded because of the actions of a small group of men whose training had emphasized night operations.

On 18 November 1944 the first elements of the 11th Airborne Division began amphibious landings

on the eastern beaches of Leyte in the Philippine Islands. A week later, the 511th Parachute Infantry Regiment of this division began moving into the interior of the island with the mission of passing over the central mountain ranges and making contact with the 7th Infantry Division, which was to land on the western coast of the island. (Figure 1.)

By 8 December the 511th had secured Rock Hill, a dominating terrain feature in their zone of advance. Rock Hill was a part of a long ridge running down to the western coast. The Japanese had built their main supply trail along this ridge.

For two weeks the regiment was engaged in destroying enemy strong points and securing dominating terrain. Then on the 20th of December the division commander ordered a continuation of the main attack along the supply trail. The goal was to make contact with the 7th Division, which had landed on the western coast.

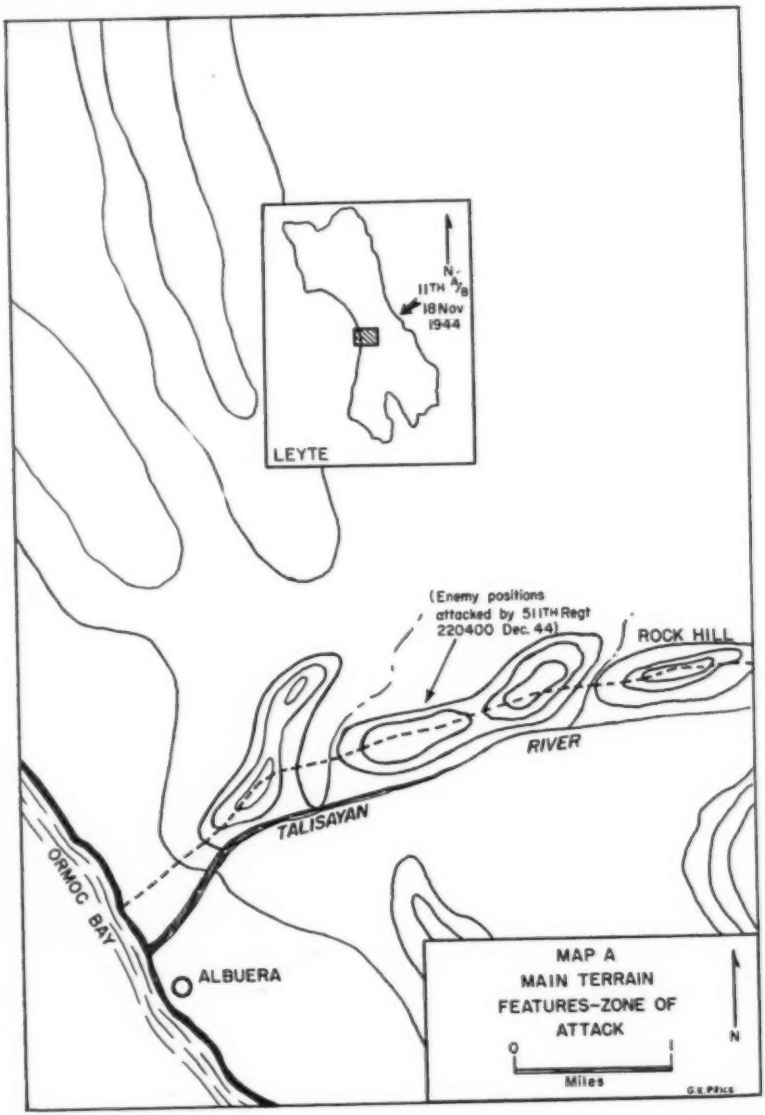
Throughout the next day the 2d Battalion of the 511th advanced slowly against dogged enemy resistance. But, after repeated unsuccessful attacks against a tenaciously defended enemy strong point, the battalion was forced to disengage and establish a perimeter for the night. The battalion commander realized that further attacks against this position would be extremely costly and time-consuming. The position dominated all surrounding approaches, and its northern and southern slopes were too precipitous to attack. Weather was extremely bad, and the enemy showed every sign of continuing his defense at all costs.

The regimental commander decided on a night attack. At 1900 on 21 December he issued the attack order. *D Company was ordered to make a frontal attack at 0400 on the next day. It was to be followed in column by E and F Companies and the remainder of the regiment. Since the trail was narrow and maneuver all but impossible, the attacking front of the regiment would consist of only a handful of men from the assault company.

No reconnaissance of the terrain had been made. Early darkness and the dense jungle foliage had made observation or any extensive movement impossible. The D Company Commander could only assume that the terrain ahead was similar to that which lay behind. Enthusiasm for the night operation was dampened even more by the continuous rain and by the erroneous notion that movement in the jungle during hours of darkness was just about impossible.

The D Company Commander drew up a simple plan of attack. The company was to cross the line of departure, which was the forward edge of the perimeter, in a column of platoons. Each platoon

* Lettered heavy weapons companies did not exist in WW II parachute units. The "D" Company referred to in this article is a rifle company in the second battalion which was composed of D, E, F and Headquarters Company. Heavy weapons were carried in the Headquarters Company. Present airborne units are organized the same as regular Infantry units.


LEYTE
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A/B
11TH
18 Nov
1944
(Enemy positions
attacked by 511TH Regt
220400 Dec. 44)
ROCK HILL
RIVER
TALISAYAN
ORMOC BAY
ALBUERA
MAP A
MAIN TERRAIN
FEATURES-ZONE OF
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N
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G.E.Pike

Figure 1.

would move in a column of squads. This formation would allow the column to enter the enemy position on an extremely narrow front. It was hoped that the company would be able to penetrate deep into the enemy position before being detected. After seizing and reorganizing on the objective, the company was to continue its attack along the ridge, exploiting any success achieved.

Surprise was to be gained by stealth and by the fact that the attack was being launched at at unexpected hour. Since the radios were out of operation, pyrotechnics not available, and wire too difficult to handle because of the thickness of the foliage; control was to be by voice alone. The company commander decided to move behind the lead squad of the lead platoon with the platoon leader, where he would be in the best position to control the attack.

The assault platoon crossed the line of departure at 0400 and began groping its way along the jungle path which ran up the ridge toward the enemy position. The lead squad reached a position directly in front of the enemy emplacements without being detected, and began the climb to the top of the objective. Two enemy outposts were discovered and noiselessly destroyed. By 0530 the lead platoon had penetrated well into the strong point.

At this point a startled Japanese machine gunner, aware of movement around his position, fired an erratic burst that alerted the other defenders. The enemy began firing in all directions and succeeded in stopping the assault platoon. Individuals in the lead squad continued to hurl grenades into any Japanese positions disclosed by gun flashes. The company commander and the platoon leader of the lead platoon attempted to coordinate an assault against the enemy positions near the crest of the hill only 50 yards away, but the darkness and the noise of firing made coordination impossible.

At this decisive point in the battle, the squad leader of the lead squad, which was located on the right side of the trail, made his own decision. He gathered six of his men together, ordered a simultaneous toss of grenades, and then led a quick rush up and into one of the main Japanese positions. This assault was successful, and the men found themselves among a confused enemy who slackened their fire to the front and permitted the remainder of the platoon to move forward. Within five minutes the main enemy emplacements were captured and the objective was in the hands of the assaulting company.

By this time there was some light and control was possible. Seeing the disorganization of the enemy, the company commander ordered the second platoon to pass through the first platoon and continue pressing the attack. The assault continued throughout the day. At about 1000 the 2d Battalion of 187th Glider Infantry Regiment passed through the 511th, and made contact with the 7th Division a few hours later.

Let's examine this night attack.

Why did it come so close to failure? Why did it finally succeed?

The attack was launched only after other means, which incidentally were more costly, had failed. This is often the case. It reflects the lack of confidence in night operations possessed by many troop commanders. Before and during the attack, the company commander tried wherever possible to apply the principles governing the night attack. But his efforts were hampered by the actual situation.

The attack was planned as thoroughly as the circumstances would permit. Without this, it would certainly not have succeeded. The attack was launched at an hour when the enemy was least alert and when darkness and weather conditions favored the attacker. The lack of control after contact was unavoidable because of the complete lack of signal equipment. Control was made even more difficult by the complete lack of reconnaissance of the terrain forward of the line of departure. The nature of the terrain greatly limited the possibilities of maneuver. Because of these difficulties, the attack order had to be simple. A complicated plan would have resulted in confusion and failure.

At the time the main resistance was encountered, the attack was unquestionably stalled. The final success was due to the actions of the men of the lead squad of the assault platoon who, following the directions of a noncommissioned officer, provided the decisive action that ensured the initial breakthrough and led to the successful exploitation.

It is important to note that these men had received the specialized night training necessary for preparing troops for an airborne role. This training had stressed teaching the individual soldier methods of night movement and orientation, terrain evaluation and analysis, map reading and photo interpretation. More important, it had given these soldiers confidence in their ability to operate successfully in total darkness.

It is this type of exhaustive, continuous night training that our troops should be receiving today. The need for it is well understood by those responsible for setting up training requirements. Army Training Program 7-300 requires that at least 33 per cent of all tactical training be conducted at night.

This directive still does not put enough emphasis on night training. For example, in the section covering training common to all companies of the regiment, the training requirements for weapons marksmanship are dealt with at great length, yet night firing receives little elaboration. The night compass course is run only once or twice by the average man before he is passed on to what are believed to be more important subjects. Millions of trainees have spent several hours at night listening to mess kits rattling or watching for the light of a match at different ranges, but this training is seldom followed up and is consequently of little value.

Future training programs should elaborate in greater detail on night training subjects and the goals that are to be achieved. Such a direc-

tive would amply prepare the basic trainee and the newly organized unit for night operations. Night training should be fully integrated with other subjects, instead of becoming isolated exercises to be used by commanders as fixed solutions for filling the requirements.

It follows then that there is a need for selling to all commanders the great advantages to be gained from night operations. This is a task for the service schools. A cut-and-dried narrative of the principles and techniques of night operations is not enough. Only if it is presented with emphasis and ingenuity will it be possible to overcome the inertia that today is so injurious to our night training programs.

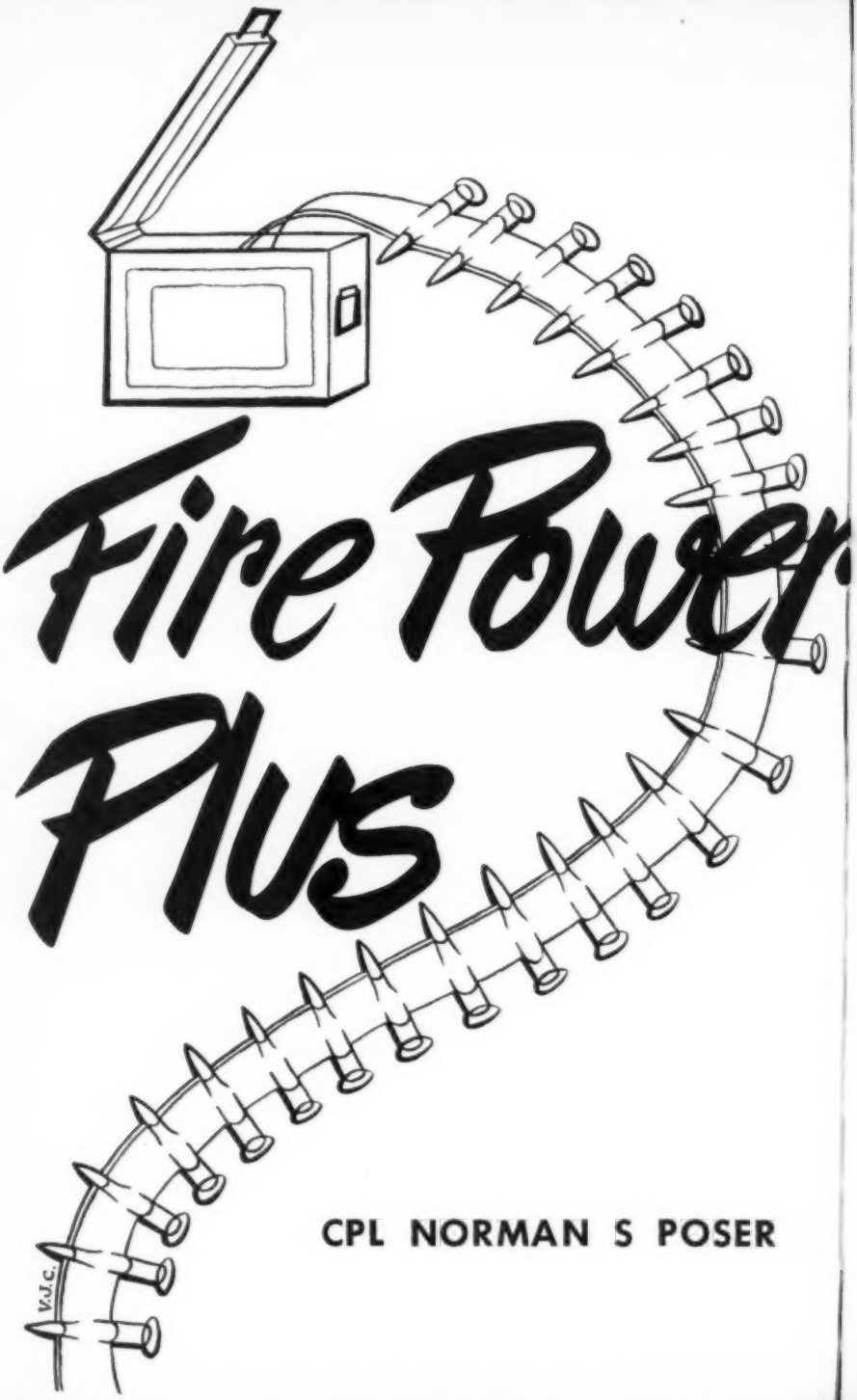
The individual trainee who is being trained as a replacement for a unit already in combat, needs a greater amount of training in night operations to make up for the unit training he will not receive. The soldier who trains with a unit in the zone of the interior and enters combat with his unit will know his comrades and be acquainted with the wishes of his leader. The replacement will lack these advantages, vital to night operations.

Past experience has proven that United States troops are capable of conducting successful offensive operations at night, but this is normally the case only when special emphasis has been placed on night training. The infrequency of night attacks, both in World War II and Korea, has clearly indicated the lack of confidence felt by the average commander in ordering such operations.

An increased emphasis on night operations in the service schools and in our training programs would do much to place night operations in a more realistic light and permit our forces to exploit to the fullest the inherent benefits of the night attack.

No man is fit to command another that cannot command himself.

— ***William Penn***


Fire Power
Plus
CPL NORMAN S POSER
V.J.C.

The story of the machine gun—1066 to 1953.

IN 1718 an Englishman named James Puckle patented an amazing invention. He called it "a portable gun or machine . . . that discharges so often and so many bullets, and be so quickly loaded, as renders it next to impossible to carry any ship by boarding."

Puckle's gun looked quite modern. It had a tripod and elevating mechanism not too different from those used on today's machine guns. It functioned something like a revolver. The breech had several chambers and could be rotated by hand. When all the charges had been fired, the whole breech was replaced with a loaded one.

The gun had an additional feature. As one historian noted. "The inventor proposes to use round bullets against Christians and square ones against Turks," whom the inventor must not have liked.* There was only one trouble with it: It didn't work. The matchlock ignition system of the day was ineffective and dangerous in a revolver type weapon. Nevertheless, Puckle gave his contemporaries a startling look into the future.

James Puckle was only one of many men who developed primitive versions of the machine gun. The search for a weapon that would increase the fire power of the Infantrymen goes even further back than the invention of gunpowder. It is believed that at the Battle of Hastings in 1066 the English had a magazine-fed crossbow capable of firing 10 arrows without reloading.

In the fourteenth century a breech-loading, single barrelled gun was designed. It even had a device for locking the breech. But the idea had to be dropped until a more efficient method of ignition than the fuse or the flint was found. The machine gun still had centuries to wait.

Meanwhile, however, man's ingenuity would not rest. Throughout the middle ages (and in the centuries that followed) design after design of multi-barrelled, volley-firing guns were invented. Usually the barrels were placed side by side on a cart. Each barrel was loaded with the powder and shot. When the primer was lit, the flash set off all the barrels simultaneously.

But these guns had several drawbacks. For one thing, they were tremendously heavy, and often needed teams of oxen to drag them around. And, while the volley gave a temporary superiority of fire

* At this time the Ottoman Turks were a military menace to European civilization.

power, there was no fire power at all for a long time after each volley, while the barrels were being laboriously loaded.

Despite its inconveniences, the volley gun lasted until something better came along. An improved model using metallic cartridges, the Billinghurst Requa Battery Gun, was used during the Civil War. But meanwhile the percussion cap had been invented and the problem of ignition solved. The first machine gun was not long in coming.

In 1862 Dr. Richard Gatling of Chicago invented the first gun in which the charges were fed into the chamber, fired, and extracted purely by machinery. The Gatling Gun was heavy and cumbersome; it did not work automatically, but by a crank that the operator had to turn to keep the gun firing. Nevertheless, it was the marvel of its day.

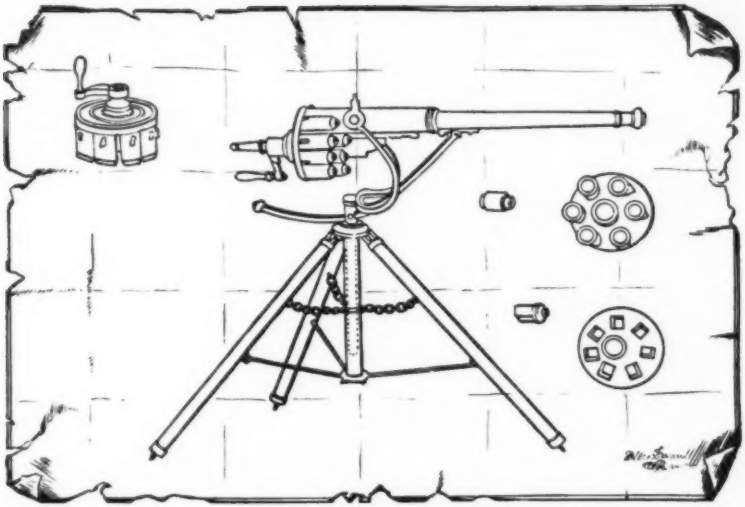
The gun had six (later 10) barrels fixed in a circle. When the crank was turned, the barrels rotated and at the same time a cartridge dropped from the feed into a groove that lined up with one of the barrels. Each barrel had a bolt, which automatically pushed the cartridge into the chamber. As the crank continued to be turned, the striker fired the cartridge, and the next round was loaded and then fired. The operator controlled the speed of the mechanism. An expert operator could fire up to 1,000 rounds a minute.

The first Gatling Guns used a crude ball-and-powder round with a percussion nipple, but in 1865 the gun was redesigned to fire metallic cartridges. Although the United States Army refused to buy Gatling Guns during the Civil War, the weapon was officially adopted in 1866, and used until the first decade of the Twentieth Century. There were many variations of this first machine gun, including a power driven model, whose crank was turned by an electric motor.

During the 1860's the French adopted a machine gun similar to the Gatling Gun called the Mitrailleuse. Some models of this weapon had over 30 barrels. The Mitrailleuse, like the Gatling, was so heavy that it had to be mounted on a gun carriage. Greatly publicized as the secret weapon of the Franco-Prussian War of 1870, the Mitrailleuse proved an almost total failure.

The fault was not that of the weapon itself, but of the tactics used. Not having taken the trouble to devise new tactics for their new weapon, the French employed the Mitrailleuse as artillery. In fact, they substituted these weapons for artillery pieces. The Germans had no trouble spotting the ungainly gun carriages, and made a special point of knocking them out before advancing.

In the few rare cases that the Mitrailleuse was used from covered positions as an antipersonnel Infantry weapon it was extremely successful. Nevertheless France's quick defeat in the war discredited the Mitrailleuse, and for almost 40 years the Gatling dominated the machine gun field. Many nations bought these weapons and Dr. Gatling's employees sometimes found themselves demonstrating their wares in the heat of foreign battles.



These two pictures span two hundred years of machine gun development. Top: James Puckle's design of 1718. Although this weapon was probably never successfully fired, it has some remarkably modern features. Certainly the tripod might have been designed in the 20th century. Bottom: Browning Machine Gun M1917A1, with Tripod M27, the heavy machine gun used by the Infantry today.

But the world knew that the Gatling Gun was not the final answer. The Civil War had demonstrated the effectiveness of the entrenched Infantryman armed with an accurate rifle. What if this Infantryman could be given an automatic weapon? His defensive power would revolutionize warfare. During the 1860's and '70's inventors and gunmakers throughout the world unsuccessfully tried to design a light Infantry weapon capable of full automatic fire.

It was at this point that an American named Hiram Maxim came on the scene. A successful electrical and chemical engineer, Maxim was visiting the Electrical Exhibition in Paris in 1883 when he met an American whom he had known at home. "Hang your chemistry and electricity!" said the acquaintance. "If you wish to make a pile of money, invent something that will enable these people to cut each others' throats with greater facility."

The idea of a fully automatic machine gun had haunted Maxim for years. He recalled the first time he had fired an American military rifle. His shoulder had received a tremendous kick from the weapon. Perhaps the energy of that recoil could be used to eject the old cartridge and load and fire a new one.

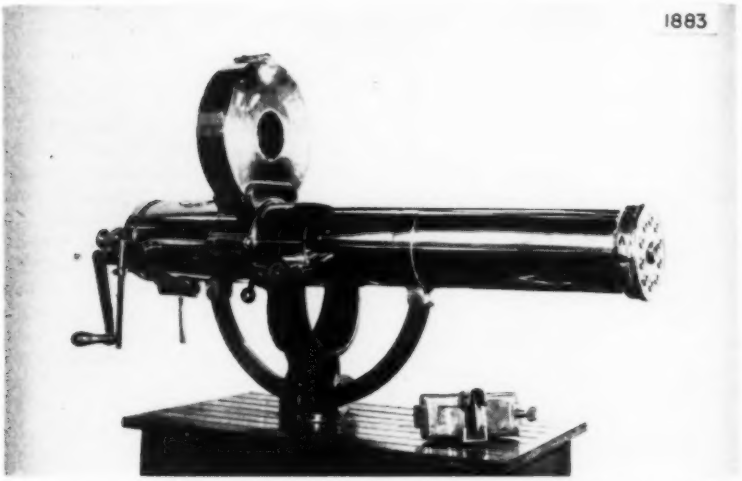
Ignoring all advice that the task he had set himself was impossible, Maxim took lodgings in London and began work. By the spring of 1884 he had completed the first automatic weapon.

In principle Maxim's machine gun was no different from the recoil-operated machine guns that the Infantry uses today. When the gun was fired the pressure of the expanding gases in the chamber moved the bolt back about three quarters of an inch which unlocked the barrel from the bolt so that the bolt could continue its backwards motion, ejecting the empty cartridge. In its forward motion the bolt fed another round into the chamber from the belt and the firing pin fired the new cartridge. This action was repeated as long as the trigger remained depressed.

While each barrel of the Gatling Gun had time to cool off before being fired again, the single barrel of the Maxim gun easily became overheated. To remedy this, Maxim placed a jacket holding seven pints of water around the barrel. The gun was fired from a tripod and was belt-fed. With the tripod it weighed 85 pounds. Both Germany and England soon adopted the Maxim gun. The English model is known today as the Vickers, after the name of the manufacturer.

Two geniuses, both American, dominate the development of the machine gun. Two more opposite men could hardly be imagined. Hiram Maxim turned his brilliant mind from engineering to gun designing only when he found that he could make more money from it. The other man was John Moses Browning, whose father was a gunsmith, and who had worked with firearms since his early days.

By the time he was 26, Browning had invented a lever-action repeating rifle and was already a respected gunmaker. In 1889 he was testing a new shoulder weapon on



Two great machine guns of the 19th century. Top: Gatling Gun. Model 1883, Ten-Barrel. Caliber .45. with Accles Feed Drum. One of the last of the hand-cranked machine guns. this weapon was used by many major powers of the world. Bottom: Maxim Automatic Machine Gun. Model 1893. Caliber .45. This was the first gun to use the force of its recoil to perform the operations of unloading, reloading and firing.

the salt marshes near Ogden, Utah, when he noticed a peculiar effect. Each time he fired, the bulrushes parted for several feet in front of the muzzle. Just as the recoil against his shoulder had set Maxim's mind working, so the effect of the muzzle blast led Browning to an important invention.

Perhaps, thought Browning, a part of the expanding gases could be used directly to operate an automatic weapon. A small hole could be drilled in the barrel near the muzzle end and the gas escaping through it harnessed to move the bolt.

Browning went to work and a few months later came up with the first gas-operated machine gun. The gases struck a lever under the gun which swung down and back operating the breech mechanism. Although the first model fired caliber .44 ammunition, it was soon adapted to take the .30 caliber rifle ammunition of the day.

The improved gun was the Browning designed Colt Model 1895 machine gun. It was belt-fed and was capable of firing 16 rounds a second. Because of the peculiar downward movement of the level, it was soon nicknamed the "potato digger."

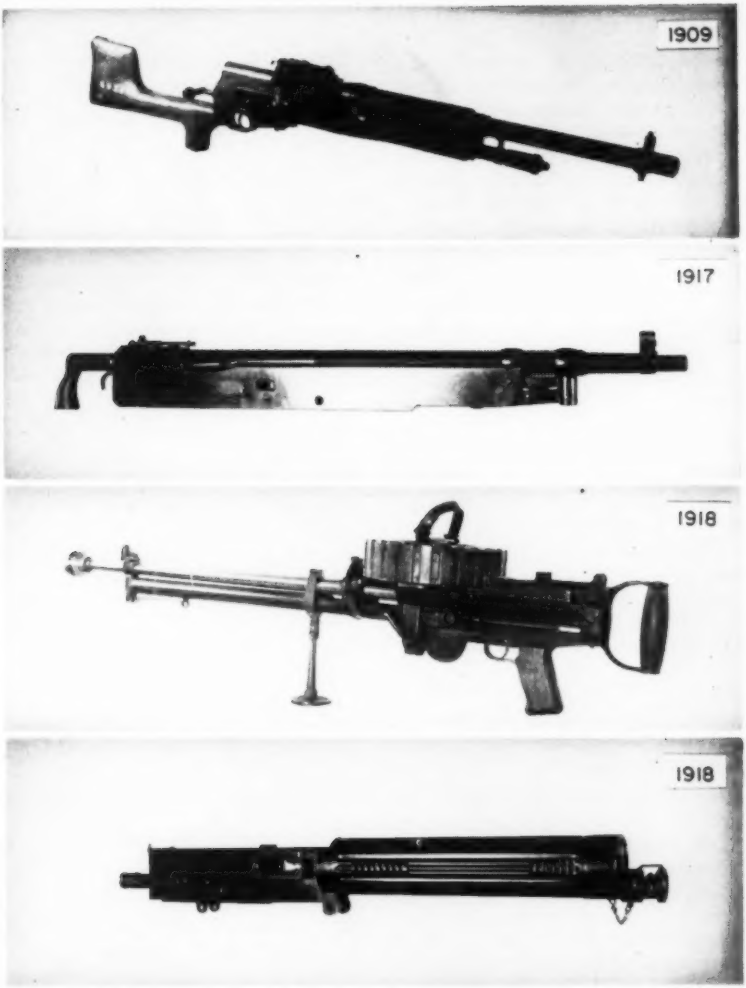
In 1897, 50 of these machine guns were sold to the U. S. Navy. Weighing less than 40 pounds, they were considered ideal for landing parties. The Navy used the gun successfully in the Spanish-American War, but the Army, although interested, stuck to the Gatling Gun for a few more years.

The Model 1895 machine gun had several disadvantages. It had too many small working parts and too frequent stoppages. The delicacy of its mechanism made it unsuitable for ground combat. Besides, the lever action made the gun vibrate too much to be really accurate. Having no water jacket, the machine gun could not be fired for long without overheating. Another disadvantage was that when the firer removed his finger from the trigger, a live round remained in the chamber with the breech closed on it. Nevertheless this weapon was an important advance in the history of firearms. It was, in effect, the grandfather both of the BAR and the M1 rifle.

During the years leading up to World War I the tactics of the machine gun had not yet been fully worked out. The Army was not officially aware that it would need two distinct types of automatic Infantry weapons — a light automatic rifle to move up with the riflemen in the assault; and a heavier more stable machine gun capable of sustained fire to be used chiefly in the defense.

Consequently, although the Army adopted the Maxim heavy machine gun in 1904, it discarded this weapon five years later for the Benet-Mercie Automatic Machine Rifle. This air-cooled weapon operated on the same principle as the BAR. Incapable of sustained accurate fire and tending to overheat, it was a poor substitute for the heavy machine gun.

Although the Benet-Mercie was used as late as World War I, it had by this time already shown itself



Top to bottom: Benet-Mercie Machine Rifle, the predecessor of the BAR, used by the U. S. Army in the years immediately before World War I; Marlin Machine Gun, Model 1917, Caliber .30, a gas-operated weapon that was a development of the lever-action Colt Browning Machine Gun; Lewis Aircraft Machine Gun, Model 1918, Caliber .30, with 97-round magazine, a British designed weapon that was also produced in the U. S.; Vickers Aircraft Machine Gun, Model 1918, 11 mm (approximately .45 Caliber), another foreign gun produced during World War I, before the Browning Machine gun became standard.

to be inefficient. It had too many small parts and an intricate system of loading. Because of the difficulty of loading it at night it was ridiculed in the press as the "daylight gun," and one humorist suggested that the rules of war be changed so that the Benet-Mercie could be used.

When the United States entered the war in 1917, we possessed only 1100 Maxim, Colt, and Benet-Mercie machine guns. By this time automatic weapons had proved themselves on the battlefields of Europe, and the Army decided that it needed a new machine gun. It turned to John Moses Browning.

As far back as 1900 Browning had designed a heavy machine gun. Although he was receiving no financial support from the government, he steadily improved upon this original model. He changed the ejection system so that the empty cartridges were thrown downwards instead of to the side and installed a buffer system to absorb the recoil and speed up the forward movement of the bolt.

On 27 February 1917 Browning gave a public exhibition of his heavy machine gun and his new automatic rifle (the BAR) to a group of high military and civilian officials at Congress Heights, just outside Washington, D. C. They were amazed at the effectiveness and simplicity of operation of the new weapons. The heavy machine gun was recoil-operated, belt-fed, caliber .30, and water-cooled. It weighed $36\frac{1}{2}$ pounds with water in the jacket and had a cyclic rate of 550 rounds per minute. Although its operation was similiar to the Maxim, it had far fewer parts and was easier to produce.

The two guns that Browning demonstrated were the only models of their kind in existence at the time. When we went to war we had to use our older models as well as machine guns of French manufacture. The Browning .30 Caliber Model 1917 arrived in Europe too late to be used extensively in the war. It did, however, perform superbly under adverse combat conditions.

This machine gun was used throughout World War II by our armed forces. It has been called the finest defensive-offensive Infantry weapon in the world. Two air-cooled versions of the same gun are known as the M1919A6 and M-1919A4. These light machine guns have a heavier barrel surrounded by a perforated steel jacket to dissipate the heat.

The A4 has been used in tanks and airplanes; while the A6 is fired either from a light tripod or bipod, and like the "heavy," is still a standard weapon of the Infantry.

The Army also uses a .50 caliber Browning machine gun. Its operation is similar to the .30 caliber model; its working parts are constructed more strongly to allow for the increased pressures built up by a .50 caliber cartridge.

The machine guns and automatic rifles of John Browning are marvels of simplicity and combat efficiency. Yet they are not the final answer in the search to give the Infantryman more and better fire power. The Army will never cease to develop better weapons. One very re-

cent improvement is the M-73 tripod. This new mount for the heavy machine gun weighs about half as much as the old tripod and at the same time has greater stability than its predecessor.

The next development in the machine gun will perhaps be a single automatic weapon capable of replacing the light machine gun, the heavy machine gun and perhaps the automatic rifle. Such a weapon would be as light as the AR, and would have the sustained fire power of the light machine gun. Eventually it may be possible to replace all our automatic weapons with one gun that would combine light weight with great stability.

Perhaps the answer will be to have interchangeable barrels on a standard gun — a light barrel for use as an automatic rifle and heavy one for use as a machine gun. This solution, however, will intensify another problem — ammunition resupply. Large amounts of ammunition are needed for any gun having a high sustained rate of fire. This difficulty may be partially alleviated by lighter ammunition, lighter links, and lighter packing.

We have come a long way since the crude multi-barrelled guns of medieval times, or even since the Gatling Gun. Today the Infantryman has a dependable automatic weapon for every phase of combat. But the story of the machine gun has not yet been fully told. The next chapter lies in the future.

Acknowledgment

The QUARTERLY expresses its appreciation to the Museum of the United States Military Academy for permission to use these photographs of historic machine guns. The editors regret that credit was not given the Museum for the pictures of weapons of the past used with "From Musket to M1." (INFANTRY SCHOOL QUARTERLY, July 1953.)

the Judge Advocate and You

Major Stephen A. Day

How the Army's Free Law Firm Serves the Infantryman.

MOST INFANTRYMEN ARE only vaguely aware of what the Judge Advocate officer, the lawyer-officer, is equipped to do for them. They picture the JA as an unapproachable individual on the division staff or the staff of the post commander who stays about two paces to the left and rear of the Commanding General and whispers legal advice to him at appropriate times. Too many soldiers believe that the JA is the officer who, with his legal know-how, is able to make a court-martial stick against the man who comes under his jurisdiction.

The Division Judge Advocate Office is actually a working law firm of about five officers, a warrant officer, and a couple of enlisted men. Since all of these people can't follow the Commanding General around all day, they must have some other definite purpose for their existence. Let's take a look at the responsibilities of the Division or Post Judge Advocate. They are:

1. Advising the commander and staff and other members of the command on questions of law.

2. Supervising the administration of military justice in the command.

3. Furnishing legal assistance and advice to military personnel and their dependents concerning legal problems.

4. Reviewing and recommending the action to be taken upon charges prior to reference to trial by general courts-martial; reviewing records of trial by general courts-martial and military commissions and records of trial by special courts-martial in which a bad conduct discharge has been adjudged; and advising the appointing authority with respect to such records of trial.

5. Examining records of trial by special and summary courts-martial for errors, defects, or omissions; preparing necessary corrective action; and acting as custodian of special courts-martial records not involving bad conduct discharges and of one of the copies of summary courts-martial records.

6. Reviewing and recommending action to be taken on all matters pertaining to claims.

Now what does all this mean? First the Staff Judge Advocate **does** advise the Commanding General on legal matters. But that is only a small part of his job. Look again at "3" above — "Furnishing legal

assistance and advice to military personnel and their dependents concerning legal problems." But, you say, that doesn't mean me. It certainly does! It means every man or woman and his or her dependents in the command.

Almost every JA office in our Army maintains a legal assistance office with at least one lawyer-officer doing practically nothing else but full time legal assistance. His job includes giving advice on everything from adoption to income tax, family allowances to divorce, debts to insurance, power of attorney to voting.

Whenever it is practicable, the JA office at any post or station is **required** to provide legal assistance to all members of the post or station. The lawyer-officer is more than happy to provide such assistance. The reason is not hard to find. To keep professionally alert, he likes to have unusual legal problems, just as the medical officer likes to have something more than routine sick call.

Now let's see what else the Judge Advocate does for the Infantryman. He makes sure that all members of the command who are tried by courts-martial receive a fair and impartial trial before the proper court. He reviews all cases for legal correctness. This court work takes much of his time, for it is a most exacting business.

Looking at "6" above, we see that the JA has much to do with claims. Many higher commands have a JA officer designated as the "claims judge advocate," who works full time at reviewing claims and recommending appropriate action. The JA cannot solicit or encourage you to file a claim, because the claim, if any, would be made against the Government; but he can provide you with all the pertinent regulations, and assist you to put your claim in proper form.

The personnel sections of most outfits operate a non-T/O&E Courts and Boards Section. These sections vary from one organization to another, but most contain one or two NCO's and an officer or warrant officer. These men are sometimes lawyers; if not, they are experienced in preparation of charges, pretrial investigations, and the general procedures of the administration of military justice. These Courts and Boards Sections work closely with the Judge Advocate office and often can handle minor problems. You are not required to go through the Courts and Boards Section, however, to get to the Judge Advocate office for legal assistance. There are **no** command channels between you and the legal assistance officer for your command.

All services rendered by the legal assistance officer, and the files pertaining to the persons served are treated confidentially; this is the usual attorney and client relationship. JA's are strict about this, for they wish to assure all military personnel that confidences will not be disclosed or used against the persons served in any way. There is only one exception: You cannot consult a JA about a crime which you **intend to commit** and expect that disclosure to be kept confidential.

Here is one example of what the Judge Advocate will not do. He will not provide legal assistance to members of the military in any case in which such personnel are or probably will be the subject of court-martial investigation or charges.

The Judge Advocate can help the unit leader, too. It is sometimes erroneously believed that the JA steps in when discipline breaks down, and not until then. The Judge Advocate is fundamentally interested in stopping breakdowns in discipline before they happen.

Fewer courts-martial mean less work for him, and he usually has a heavy work load. He is a counsellor, trained to analyze and observe. His first hand knowledge of the courts, boards, and investigations, past and present, makes him keenly aware of the status of morale and discipline in the command.

The Judge Advocate officer calls the process of stopping discipline breakdowns before they happen "preventive discipline." Small unit commanders would do well to consult the Judge Advocate when appearances of discipline breakdown begin. The advice give by the JA undoubtedly would be worth serious consideration.

So, there you have it. The JA can do more for you than just seeing that you and your men get a fair trial, important as that may be. He gives legal advice in a score of fields, free of charge, to those who are entitled to it; he keeps his talks and files in strictest confidence.

He can set you straight on claims. And he will do all he can to assist you, as a unit leader, in preventing trouble before it happens — all free for the asking.

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Captain Lyman H. Clark

The NEW Doctrine for the Infantry-Tank Team in the Attack.

DID YOU EVER TELL ANYONE you've got something that's brand new and watch his eyebrows go up?

New? There's nothing new under the sun.

Well, the Army has a "new" doctrine for using the Infantry-Tank team in the attack. What it amounts to is a simplification which will certainly lead to more efficiency and better coordination. Starting in June 1953, whether you are a tanker or an Infantryman, you will learn that there are only three fundamental methods of attack for the Infantry-Tank team.

The Infantry School used to teach five methods. The Armored School also taught five, but they combined two of the Infantry's methods and added one more — Infantry riding on tanks. More about this later. After conferences between representatives of the two schools in the fall of 1952, the new doctrine was agreed upon and approved by the Office of the Chief of Army Field Forces.

First, a few words about the Infantry-Tank team in general. It is usually made up of a platoon of tanks attached to a rifle company. The rifle company commander runs the team. Occasionally — in dense woods, built-up areas, jungles, or on mountainous terrain — the team may consist of a section of tanks attached to a rifle platoon. But this is an exception.

The effectiveness of the team depends largely on the coordination between its elements. As much as possible, it should be trained as a team. The Infantry commander must know what tanks can and can't do, while the tank platoon leader must be familiar with the capabilities and limitations of the Infantryman.

Infantry and tanks are as natural a team as the fingers and the thumb of your hand. When supporting each other, the value and power of each element increase enormously!

The weapons and obstacles most dangerous to a tank do not greatly bother the Infantry. Foot soldiers protect and help armor by clearing anti-tank mine fields, destroying tank-hunter teams and by locating long range anti-tank weapons and pointing them out to the tanks' crews.

Tanks are equally helpful to the Infantry. Practically impervious to small arms fire and shell fragments, they can destroy enemy automatic weapons emplacements. The tanks also can clear a path for the Infan-

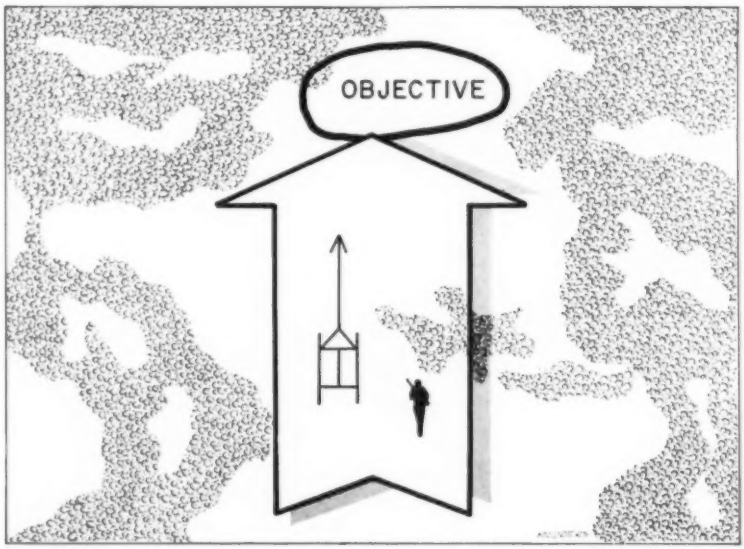

Figure 1. Infantry and tanks attack on the same axis.

try through barbed wire and antipersonnel mine fields.

One of the team commander's top responsibilities is to decide on a method of attack. This will depend on the terrain and the enemy situation. The three methods of attack now taught are:

1. Infantry and tanks attack on the same axis (Figure 1).

2. Infantry and tanks attack on converging axes (Figure 2).

3. Tanks support by fire only (Figure 3).

The commander can use one of these methods or a combination of more than one. The method of attack will sometimes have to change as the situation changes, even during the actual attack. The commander should use the tanks' mobility, armor protection, fire power, speed, and shock action to the fullest possible advantage.

Speed in the attack is vital. One technique is to have the tanks arrive on the objective first under cover of airburst artillery fire. The Infantry will move up to the assault position, lift the airburst artillery fire and launch their assault to mop up the objective. This allows the attack to be made at the speed of the tanks.

When the tanks and Infantry arrive at the same time, or when the Infantry arrives first, the speed of the attack will be limited by the Infantry's comparatively slow rate

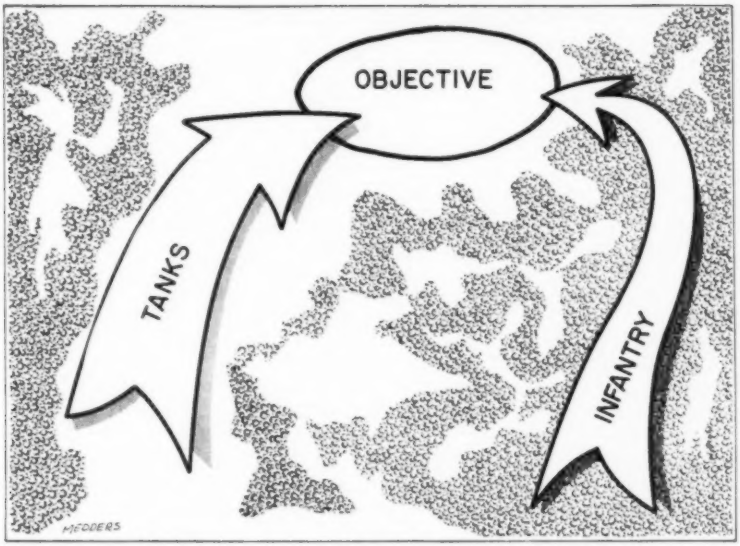

Figure 2. Infantry and tanks attack on converging axis.

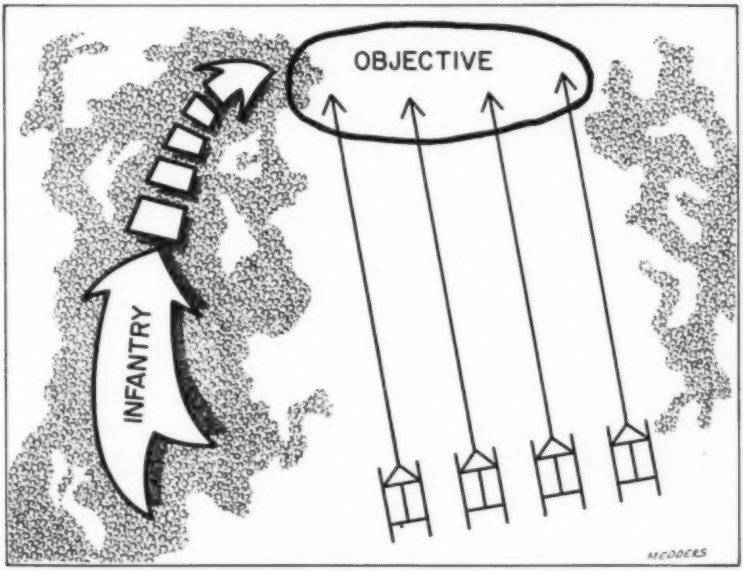

Figure 3. Tanks support Infantry by fire only.

of advance. In the event the Infantry arrives first, the tanks must move up speedily to provide fire support.

Before discussing the three methods of attack, I must emphasize that having the Infantry ride on the tank is **not** a method of attack but a means of transportation. It can be used only before contact is made. In the attack troops riding on a tank would be very vulnerable; and the tank would lose some of its fire power.

Infantry and Tanks Attack on the Same Axis. This method should be used when there is only one avenue of approach to the objective, and when the tanks have firing positions along that approach and maneuver room so that they can join the Infantry in the attack.

With good visibility and fields of fire, the tanks can support the Infantry by fire and then join the Infantry in the assault. When the enemy has little overhead cover, a good technique is for the tanks to pass through the Infantry and lead the assault under cover of airburst artillery fire. Both of these techniques give maximum speed, fire power and shock action.

When visibility and fields of fire are restricted, tanks and Infantry should advance together. When practicable, tanks should lead. This technique is easy to control and mutual support is simplified. The tanks' fire power and shock action is utilized but the speed of the attack is held down to the rate of the Infantry.

Infantry and Tanks Attack on Converging Axes. This is the best methods of attack, since it capitalizes on surprise and makes the enemy fight in two directions. It is also the most difficult method to coordinate. The rifle company commander must have good communications with the tank platoon leader.

This method can be used when there are two approaches to the objective, at least one being a good approach for tanks and one a good approach for Infantry. If one axis is used exclusively by tanks and the other exclusively by Infantry, mutual support will be partly lost for a while. The tanks can support the riflemen until they move to the assault position. At this time, both the Infantry and tanks converge on the common objective so that they arrive on the objective simultaneously; or the tanks can arrive first, with overhead artillery fire being used until the Infantry arrives.

When both avenues of approach are good, tanks and Infantry can be used on both axes. One axis may be predominantly tanks while the

(Above) Infantrymen clear a passage through a mine field for tanks to demonstrate a technique of mutual support. (Mutual support)

(Below) Infantryman points out a machine gun that is holding up the Infantry. Note use of phone. Sketch demonstrates a technique. Normally there would be more than one Infantryman near the tank. (Mutual support)

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other is predominantly Infantry. This technique may be difficult to coordinate, but it will give the maximum surprise.

Tanks Support by Fire Only. This is the least desirable method of the three and should be used only when the other two are completely impractical. Though the tanks can effectively support the Infantry for a time by fire alone, their shock action and a part of their fire power will inevitably be lost. The commander of the team should arrange for the tanks to join the Infantry on the objective as soon as possible.

This method must be used when the tanks cannot cross the terrain or when certain obstacles cannot be cleared until the objective is taken. An example of this is where there are anti-tank mine fields that are covered by fire from the objective. In river crossings, the Infantry may have to first eliminate enemy direct fire at the crossing site before the tanks can be brought over by bridge or ferry.

The tactics of the Infantry-Tank team have one thing in common with just about every other phase of military operations. Thorough planning is a requisite for success. In this kind of coordinated attack it follows that the planning will be aimed largely at smooth working between the tanks and the Infantry.

The team commander's plan of attack will consist of a plan of maneuver and a plan of fire support. In the plan of maneuver he will decide exactly how the rifle platoons will be used in taking the objective. The very presence of the tanks will influence the employment of the Infantry units. The attack formation will depend on the enemy situation, the terrain, reinforcements and supporting fires available, the width of the zone of action, the need for security, and, of course, on the mission itself.

From the time that the battalion attack order is received, the team commander (i. e. the rifle company commander) should work closely with the tank platoon leader. If possible they should make their reconnaissance together. If the team commander directs the tank platoon leader to make a separate reconnaissance, they should meet immediately afterwards so that the tank platoon leader can make recommendations. A separate reconnaissance will have to be made if there is only a limited time for planning or if the zone of action is extremely wide.

Remember that the tank platoon leader only makes recommendations. All decisions — the maneuver of the tanks, the use of the tanks' fire power, the method of attack to

(Above) Tanks roll over barbed wire and explode AP mines in area to illustrate a technique of clearing paths for Infantrymen. (Mutual support)

(Below) Here a tank is aided by Infantrymen who bring fire on an enemy AT weapon before it can fire on the tank. (Illustrates a technique, not a tactical situation.) (Mutual support)

be used — are made by the team commander.

The team commander must keep the tank platoon leader informed of all the details of the attack. The tank platoon leader should understand thoroughly the plan for the displacement of the tanks, the signal for this displacement, the fires to be delivered, the Infantry's plan of maneuver, the reorganization plan, and the role that the tanks will play once on the objective.

During the planning phase, the Infantry and tank leaders should exchange any enemy information that is at their disposal. The rifle company commander must make sure the tank platoon leader knows where the enemy automatic weapons are emplaced, so that he can engage them early in the attack and prevent Infantry casualties. The tank platoon leader will want to know the position of all enemy anti-tank weapons, mine fields, and obstacles; and what measures will be taken to destroy or neutralize them.

The team commander must include in his plan provisions for resupplying the tanks with fuel and ammunition. Since he lacks the means of resupplying the tanks in his own company, he must see that the tank platoon coordinates with higher headquarters.

The tank platoon should first be resupplied in the assembly area before the attack starts. After the objective has been taken, the tanks should be resupplied during an inactive period if that is at all possible. This is best done by section in defilade behind the objective. Cargo vehicles will normally be used for resupply. The tank platoon leader also should make use of any time available to perform maintenance on the tanks.

To get smooth coordination in the Infantry-Tank team attack, an effective communication system is essential. Radio will be the chief means of signal communication. The radios in the tanks should be tuned in on the company command net so that the tank commanders can talk to the rifle company commander and platoon leaders through their AN/PRC 6 radio sets. Tracers, hand and arm signals, and colored smoke grenades also can be used. Wire may sometimes be used in the early phases of the attack, but its effectiveness is severely limited in this kind of operation. Another very useful means of communication is the telephone installed on the outside of each tank. Using the hand set of this telephone, the Infantryman can direct the tank's fires on targets that he has located.

The tactics of the Infantry-Tank team in the attack are largely a matter of plain old common sense. The commanders of both the Infantry and the tanks should know and understand the principles of mutual support, the methods of Infantry-Tank team attack, the technique applicable to each method, and the consideration that must be made during planning.

For the rest, it is a matter of using your head. Now that the Infantry and Armor have agreed on

the same three fundamental methods of attack, the problems of coordination between the two branches will be greatly simplified. The result will be fewer casualties and more effective attacks.

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In the January Issue

✕ **"The Fight for Hill 148"** — The story of a daylight attack in Korea, as told by a squad leader. This combat incident holds an important lesson for every Infantryman.

✕ **"Maintaining a Fighting Army"** — The Infantry soldier depends on weapons that fire and vehicles that roll. Here are some practical maintenance tips, all aimed at insuring success in the field.

✕ **"Fire Support for the Combat Patrol"** — Careful, detailed planning is the key. This article shows you exactly what one battalion in Korea did to provide its patrols with real fire support.

✕ **"Paper Blockade"** — Are our rifle companies saddled with too much paperwork? Here is one officer's plan for streamlining the everyday work of the orderly room.

✕ **"Dressed to Kill"** — Effective camouflage of men and equipment can mean the difference between success and failure in combat. By means of pictures and text, this unique article gives you the last word on the subject.

✕ **"Back Door Attack"** — Do we get the most out of infiltration? Here's a "how-to-do-it" article, describing an attack that used infiltration to good advantage.

Keep Up With the Infantry!

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Answers . . . to the Quiz

(For complete detailed discussion check the reference listed with each of the brief answers below.)

1. The color **yellow** on a military map is used to represent contaminated areas. (FM 21-30/AFM 55-2, par 8b, p.8, June 1951.)

2. The term **attack position** is given to the position which is the last to be occupied by a unit before the line of departure is crossed. (FM 7-10, Rifle Company Infantry Regiment, pars. 37, 38 October 1949).

3. **Specific formations** promote control and security. Effective formations enable the leader to deploy rapidly and place fire where it is needed. It enables each man to know where every other member of the patrol is located and will help insure the teamwork necessary for the successful completion of the mission. (FM 21-75, Combat Training of the Individual Soldier and Patrolling, par 185, October 1950).

4. An **FPL** is a **Final Protective Line.** It is a predetermined band of grazing fire assigned to machine guns emplaced along the main line of resistance on a defensive position. It can be effectively used under all conditions of visibility. FPL's are a part of the final protective fires. (FM 7-15, par 53)

5. **Prisoners of war** should be segregated as soon after capture as possible, into groups of officers, non-commissioned officer, privates, civilian indoctrination personnel, civilians and deserters. (FM 30-15, Examination of Personnel and Documents, par 8, September 1951 and change No. 1 to FM 30-15, 30 Dec. 1952).

6. **Prisoner of war collection points** although usually near a headquarters, should be out of sight and sound of the command post itself. They should be concealed from hostile observation and in defilade to avoid enemy small arms fire. They should be accessible to roads and clearly marked. (FM 30-15, par 15).

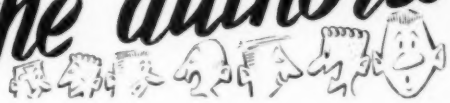
7. The **white phosphorous** (chemical) mortar **round is painted:** (b) Gray, with one band of yellow. (TM 9-1900, par. 52, June 1945).

8. A **CPX** is a tactical exercise involving all or part of a unit's command, staff, headquarters and communication personnel. Other troops and their equipment are imaginary. A CPX gives the commander and his staff an opportunity to develop teamwork, test plans, procedures, and methods for possible operations on maneuvers; and improve individual skills and techniques in simulating the moving, planning for, and fighting of a unit. (FM 21-5, Military Training, par. 22, September 1950).

9. The three types of retrograde movements are: (a) Withdrawal; (b) Retirement; and (c) Delaying action. (FM 7-15, par 256a).

10. The bursting radius of a fragmentation grenade is (a) 10 yards (30 feet). (FM 23-30 Section 1; par 2).

Meet the authors



Colonel Frank T. Mildren, author of "What Has Korea Taught Us?" (page 6), has been a platoon leader, regimental CO and staff officer. For these reasons we feel that he is particularly well qualified to write this article. He has served in Korea as G3 of X Corps, CO of the 38th Infantry, 2d Division, and as senior aide to General Van Fleet, former Eighth Army Commander. Colonel Mildren graduated from the U. S. Military Academy in 1939. He is now the Chief of the Attack Group of the Tactical Department at The Infantry School.

Captain Rolland A. Dessert, whose article "Supply By Air" appears on page 14, is a 1946 graduate of the Military Academy and a 1947 graduate of The Infantry School's Airborne Class. He served with the 187th Airborne Regiment in Japan before the Korean conflict. In September 1950, Captain Dessert went to Korea where he served as a mortar platoon leader and later as a heavy weapons company commander. Upon his return to the States in 1951, he was assigned to The Infantry School's Airborne Department where he is presently assistant operations officer.

Mr. Ray S. Miller, author of "Fire Blanks with the Light Machine Gun" (page 22), is another second-time contributor to the QUARTERLY. Mr. Miller wrote "Sub-Caliber Recoilless Rifle" for the April 1952 edition. He has worked in the ordnance field the major part of his life and has developed many items of equipment for the Armed Forces that have earned him numerous citations. Mr. Miller is at present the Superintendent of the Fort Benning Ordnance Shop.

Major Kenneth G. Groom is a 1943 graduate of the Tank Destroyer OCS at Camp Hood, Texas. His article, "The Jaundiced Eye" on page 26, is his second for the Quarterly. The drawings that accompany the article are by the author. We hope you enjoy them as much as we did. Major Groom served in North Africa and Europe during World War II as a platoon leader and later as a company commander. In 1950, at his own request he transferred from the Field Artillery to the Infantry. He is now a student at the Command and General Staff College.

Captain Bickford E. Sawyer, Jr., is well-known to readers of the Quarterly. We believe you'll find his third article, "Raid From the Sky" (page 34), rather thought provoking. Career-wise he has served in Korea as a platoon leader and company commander with the 23d Infantry. Upon graduation from the 1951-52 Infantry Officer Advanced Class he was assigned to the Training Publications Department, The Infantry School. Captain Sawyer is a 1945 graduate of the U. S. Military Academy.

Major Ellis Lea, author-inventor of "The Real Convincer" (page 46), has worked with weapons the greater part of his military career. Commissioned at Fort Knox, Kentucky, in the Infantry ORC in 1931, Major Lea came on active duty in 1940. After graduating from the Battalion Commanders and Staff Officers Course at The Infantry School, he spent the greater part of WW II with the Southern Defense Command. He coached the 1947 rifle and pistol teams at the University of Wisconsin. In this year, his team won the men's rifle NRA sectional championship in Chicago. Later the same year Major Lea was assigned to the Berlin Command, where he coached the rifle and pistol teams. The 1953 Captain of the Army Pistol Team, Major Lea is presently assigned as an instructor in the Small Arms Committee at TIS.

Captain William F. Jordan's article, "I Know the Russian Soldier" on page 52, is rather unusual. We feel that you will find it of considerable interest. The author received his commission through Infantry OCS in 1943. From 1944-45 he was with the Air Force as a Bombardier. In Korea he served with the Eighth Army's Joint Operations Center, and as a Ground Liaison Officer with the Mosquito Squadron. He is a 1952-53 graduate of The Infantry School's Advanced Course.

Lt Colonel George H. Russell, author of "Defense on an Extended Front" (page 60), began his Army career in 1940 as an enlisted man. In March 1941, he received a direct appointment as a second lieutenant of Infantry. He served in the Pacific Theater with the 25th Division and fought at Guadalcanal, New Georgia and in the Philippine campaign. Colonel Russell received his Regular Army commission in 1950. Shortly afterward he was ordered to Korea where he commanded the 1st Battalion, 23d Regiment, 2d Division and learned about fighting on an extended front first hand. A '53 graduate of the Infantry Officer Advanced Course, Colonel Russell is presently assigned to The Infantry School as an instructor in the Tactical Department.

Captain John C. Hughes is a regular contributor to the QUARTERLY. His latest article, "Lessons for Leaders," appears on page 65. He is especially qualified to write on this subject. Commissioned at the Infantry OCS in 1943, he served as a platoon leader and company commander with the 11th Airborne Division in the Philippines during WW II. He was separated from the service in 1946 but returned in 1947 on a competitive tour. Captain Hughes served as a company commander with Company K, 35th Infantry, 25th Division in Korea. In 1952, he attended the advanced TIS and upon graduation was assigned to the Tactical Department of The Infantry School as an instructor.

Captain Dillon Snell, author of "The New Squad Formations," (page 72), served as an enlisted man with the 10th Mountain Division during the Italian Campaign in WW II. After the war he received his commission from Michigan State College in 1948 and en-

tered the Army. Since then he has served with the 14th RCT at Camp Carson, Colorado, and later with the 35th Infantry in Korea as a platoon leader and company commander. Captain Snell returned from FECOM in January 1952 and is presently an instructor in the Tactical Department, The Infantry School.

Mr. Henry McLemore, whose article "The Infantry Made Me Like It" (page 75), is known the world over for his daily newspaper column. We are indebted to *Look* Magazine for permission to reproduce the article and to Mr. McLemore for reminding us all of the tremendous job and responsibility of the Infantryman.

Major Steven A. Cavanaugh, Jr., whose article "Let's Attack at Night" appears on page 78, was commissioned upon graduation from the University of California in 1942. After completing parachute school he joined the 511th Parachute Infantry Regiment and participated in the campaigns on New Guinea, Leyte, the Philippine Islands and Luzon. In '46, Major Cavanaugh joined the Airborne Department at TIS as an instructor. In July 1949, he was assigned to the European Command and later became a staff secretary to the U. S. Command in Berlin. A graduate of the 1952-53 advanced course at TIS, Major Cavanaugh is now assistant PMS&T at the University of California.

Corporal Norman S. Poser, whose article "Fire Power Plus" appears on page 86, is a 1948 graduate of Harvard, where he served as an editor of the Harvard Crimson. A former editorial assistant for CORONET magazine, Corporal Poser came into the Army in November 1951. Upon completion of his basic training at Fort Dix, he was assigned to TIS where he later became an editorial staff writer for the QUARTERLY.

Major Stephen A. Day, author of "The Judge Advocate and You" (page 96), is exceptionally well versed in his subject, since he has been both an Infantryman and a soldier-lawyer. A 1945 graduate of the Military Academy, he served with the 2d Division from March 1948 to August 1951. Before the Korean conflict he was the Division's full-time trial judge advocate. Major Day joined the 9th Infantry Regiment in August 1950 and served as a platoon leader, rifle company commander, heavy weapons company commander and regimental S1. Upon his return to the States in 1951, he became Senior Army Instructor at The Judge Advocate General's School at Charlottesville, Virginia. He is now a student in the Infantry Officers Advanced Class at TIS.

Captain Lyman H. Clark's article, "Infantry and Tanks, Inc" (page 100), is his second to appear in the QUARTERLY. (See "Get the Most From Your Mortars," July 1953 QUARTERLY.) A 1948 graduate of the Infantry OCS, Captain Clark has served in Korea with the 5th RCT in 1950. He is a '52-'53 graduate of the Infantry Officer's Advanced Course, and is presently assigned as an instructor at The Infantry School.

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